Cognitive science and the pragmatist tradition

Huiling Wang

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par Madame **Huiling WANG**

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Les sciences cognitives et la tradition pragmatiste

Directeur de thèse : M. Jean-Michel ROY

Co-tuteur de thèse : M. Zhenhua YU

Après l'avis de :

Mr. Jean-Claude MONOD, École Normale Supérieure de Paris
Mr. Emmanuel RENAULT, Université Paris X Nanterre

Devant le jury composé de :

Mme. Sumei CHENG, Shanghai Academy of Social Sciences
M. Quanmin LI, East China Normal University
M. Jean-Michel ROY, École Normale Supérieure de Lyon [Directeur]
M. Pierre STEINER, Université Technologique de Compiègne
M. Zhenhua YU, East China Normal University [Co-tuteur]

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Mrs. WANG Huiling

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COGNITIVE SCIENCE AND THE PRAGMATIST TRADITION

***Before a jury composed of*:**

Mrs. CHENG Sumei, Shanghai Academy of Social Sciences [Reviewer]
Mr. LI Quanmin, East China Normal University
Mr. Jean-Michel ROY, École Normale Supérieure de Lyon [Supervisor]
Mr. Pierre STEINER, Université Technologique de Compiègne
Mr. YU Zhenhua, East China Normal University [Supervisor]

***Additional reviewers*:**

Mr. CHEN Jiajun, Nanjing University
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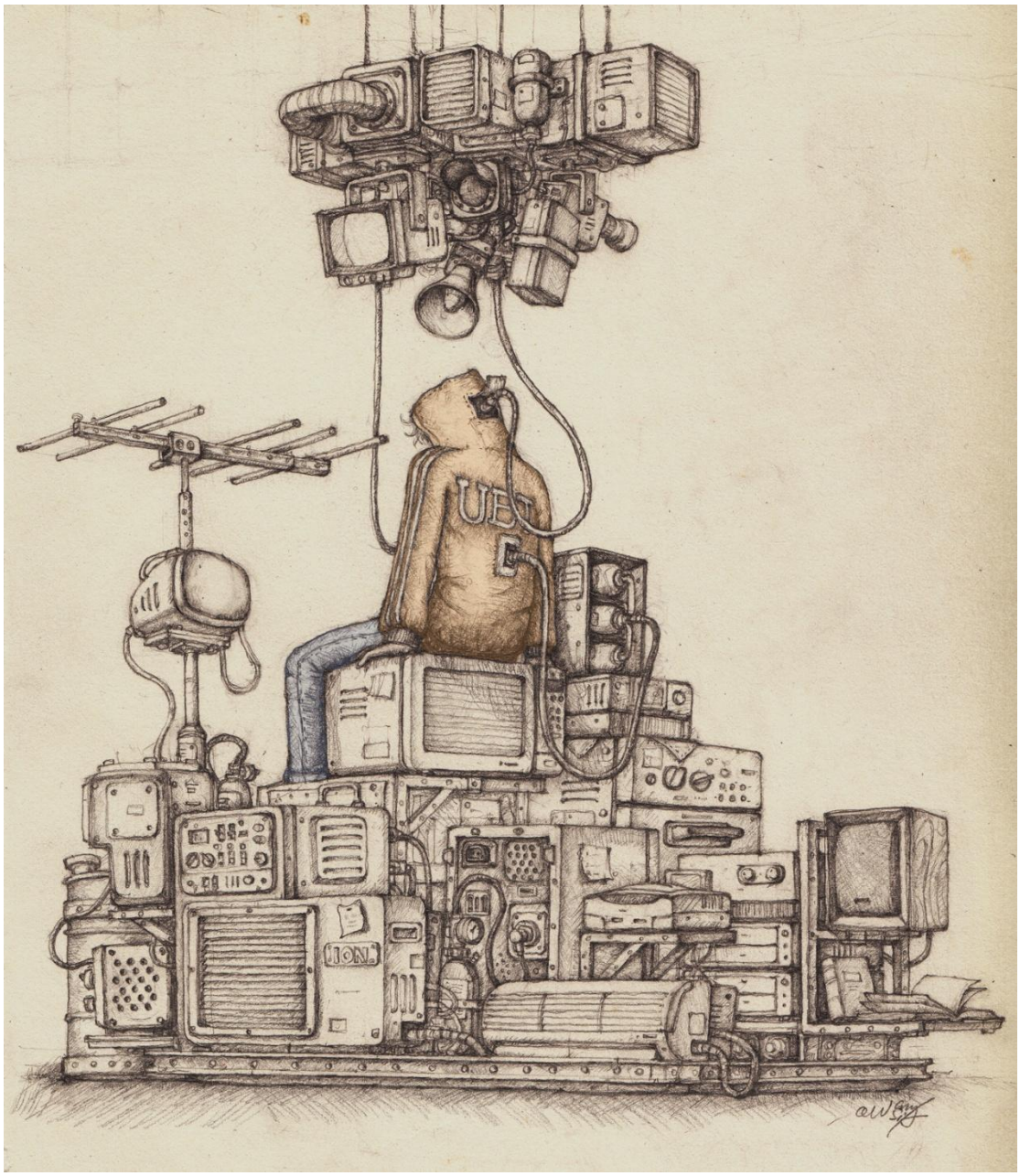
Mr. Emmanuel RENAULT, Université Paris X Nanterre



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Abstract

In this dissertation, I examine a growing trend in contemporary cognitive science known as cognitive pragmatism. This subject merits examination for a number of reasons, but primarily it is needed because the trend of cognitive pragmatism is so entrenched in cognitive science, while at the same time remaining a lightning rod of controversy. The lack of a consensus regarding the nature of American pragmatism—the purported progenitor of cognitive pragmatism—has in particular attracted skepticism of pragmatism's methodology. Therefore, it is necessary to ask why American pragmatism became involved in the discipline of cognitive science and how it subsequently came to be interpreted in such different ways. Given that pragmatism is a relatively well-established school, it is worth addressing its significance for the burgeoning field of cognitive science.

In their pragmatist-inspired views of cognition, both Mark Johnson and Jerry Fodor overlook the figure whom I consider to be pragmatism's most important: Charles Sanders Peirce. This is likely due to the fact that Peirce's ideas differ from pragmatism as it is popularly conceived, due in no small part to the influence of William James and John Dewey. Further, it is difficult for either Johnson's embodied theory of mind (ETM) or Fodor's representational theory of mind (RTM) to employ Peirceian pragmatism in their respective definitions of cognition; they perhaps have erred by filing to take into account Peirce's thought. Therefore, I shall tackle this challenge by clarifying the 'Johnson-Fodor debate' using the tools of Peirceian pragmatism, or 'pragmaticism.' Taking into consideration the current trends of both the '*pragmatist* turn' and '*pragmatic* turn,' I propose a third way: namely, a '*pragmaticist* turn' firmly rooted in Peirce's philosophy. I will thus supplement the concept of 'action' with that of 'habit' in order to reinterpret the relation between the embodied and cognitive minds.

Keywords: Cognitive Pragmatism, Action, Habit, Representation, Peirce

Résumé

Les sciences cognitives et la tradition pragmatiste

Dans cette thèse sera principalement présenté et examiné l'apport du courant pragmatiste à la philosophie des sciences cognitives. Pour cela, ni l'histoire des sciences cognitives, ni celle du pragmatisme ne seront totalement exposées, non seulement parce qu'il faudrait alors leur consacrer une étude qui leur soit à chacune uniquement et entièrement consacrée, mais aussi parce que cela requerrait un certain recul qui seul permettrait de les analyser objectivement. Qui plus est, il semble que la notion même des « sciences cognitives » ne soit pas encore bien définie par les spécialistes en ce domaine eux-mêmes. En fait, il existe de nombreuses théories très différentes, car les sciences cognitives sont interdisciplinaires et concernent des sujets divers et variées liés de plus à autant de méthodologies. Cependant, on constate de nos jours que les théories pragmatistes sont de plus en plus populaires dans le domaine des sciences cognitives. Afin de démontrer le lien significatif entre les sciences cognitives et le pragmatisme, il est nécessaire d'examiner les raisons pour lesquelles celui-ci a été choisi par les spécialistes de ces sciences.

Dans un premier temps, cette étude fera état de la direction qui a été choisie lors de ses recherches. En considérant que ce sujet est très nouveau, l'introduction s'appuiera donc sur les idées du pragmatisme et certaines recherches des sciences cognitives, aussi bien que sur des débats concernant les relations entre les deux. Un constat sera alors tiré : il semble que les qu'aucune présentation très explicite du sujet n'est encore été donnée. Ainsi, lors du processus de recherche, les questions spécifiques de cette thèse ont été fixées afin d'évaluer une tendance au pragmatisme dans les sciences cognitives, connue sous le nom de « pragmatisme cognitif ». Il sera donc principalement examiné le « pragmatisme cognitif », qui tend à croître dans le domaine des sciences cognitives et qui mérite un examen approfondi, non seulement à cause de son développement, mais aussi parce qu'il est source de débat. On constatera alors que le pragmatisme cognitif

indique en définitive une nouvelle façon de caractériser la nature mentale. Ainsi, « l'esprit cognitif » [cognitive mind] serait remplacé par « l'esprit incarné » [embodied mind], d'autant que ce thème spécifique concerne une évolution de la théorie représentationnelle de l'esprit « TRE » [representational thoery of mind] vers la théorie de l'esprit incarné « TEI » [embodied thoery of mind]. Lors de ce processus d'expansion, l'aspect philosophique est essentiel. Il est toutefois important ici de préciser que cette recherche ne concerne pas directement et uniquement les sciences cognitives, mais plus la philosophie des sciences cognitives. Dans ce but spécifique, un lien sera démontré entre les sciences cognitives et le pragmatisme, parce qu'ils concernent tous les deux la philosophie de l'esprit et l'épistémologie. Avant de rentrer dans le vif du sujet, seront donc présentées les deux théories caractéristiques, habituelles et reconnues du pragmatisme cognitif.

La première théorie vient du travail sur la philosophie de la cognition de Mark Johnson en 2006, connue comme « les sciences cognitives de la deuxième génération ». La seconde, concernent les idées plus orientées vers la science, proposées par Andreas K. Engel et ses collègues qui sont aussi connues comme ayant marqué un « tournant pragmatique ». Selon les analyses de Johnson et Engel, certains liens existent bien entre les recherches des sciences cognitives et la philosophie pragmatiste. Ils soulignent ainsi que certains aspects particuliers des idées pragmatistes peuvent guider les recherches scientifiques. Le pragmatisme est alors considéré comme une méthode de pensée visant à critiquer et à améliorer les expériences scientifiques. Bien que le pragmatisme soit devenu très populaire dans le domaine des sciences cognitives, cette évidence nécessite toutefois encore de nombreuses vérifications et démonstrations. On a pu constater qu'il existe un concept très important pour tous les pragmatistes en sciences cognitives, « l'action ». Par conséquent, le pragmatisme cognitif est particulièrement important pour expliquer la transition d'une cognition de « la représentation » à « l'action ». Cette même transition est appelée par certains « le tournant pragmatique », et par d'autres, « le tournant pragmatiste » dans un sens plus strict. Le fait demeure qu'un tel tournant est viable par rapport à la compréhension conceptuelle et est également soutenu par des preuves scientifiques. Par conséquent, «

l'action » est considérée comme une nouvelle forme de la cognition, et « l'action est cognition » est proclamée par les pragmatistes cognitifs comme le slogan du mouvement. Par ailleurs, ce tournant est connecté à un autre plus grand champ d'application du « 4E cognition », qui est lié avec la phénoménologie et l'existentialisme. Il semble probable que ce soit une tendance qui ne cesse de croître parmi les pragmatistes et qu'elle puisse en effet générer un tournant important dans les sciences cognitives grâce à une façon plus adaptée et développée.

Il apparait ainsi que le pragmatisme cognitif est considéré comme une branche ultérieure du pragmatisme original, mais en réalité, cette représentation populaire est probablement différente du mouvement d'origine de la tradition pragmatiste. Il semble que ni Johnson ni Engel et ses collègues aient donné une présentation complète du pragmatisme viable en tant que telle. En effet, Johnson ne présente que le pragmatisme de James et celui de Dewey ; et Engel ne mentionne que celui de Dewey et de Mead. Par conséquent, afin d'examiner le mouvement pragmatiste en sciences cognitives, il est plus pertinent de voir également la critique de ce pragmatisme. En outre, il a été démontré que le pragmatisme cognitif s'oppose à la théorie de Fodor, qui est connue comme étant du « cognitivisme » et du « représentationalisme ». En conséquence, afin d'analyser les mouvements philosophiques des sciences cognitives, en particulier ce tournant possible, il faut voir aussi les objections sur le pragmatisme présentées par les autres chercheurs en sciences cognitives. C'est la raison pour laquelle on comparera dans cette étude, les théories de Johnson et Fodor.

En réalité, Johnson et Fodor n'ont jamais réellement débattus ensemble, mais leurs argumentations opposées au sujet du pragmatisme peuvent être pris en considération pour créer un exemple caractéristique. En fait, leurs positions sur le pragmatisme ne sont pas seulement différentes, mais très extrêmes. On peut utiliser deux métaphores pour différencier leurs deux positions caractéristiques. La première métaphore concerne la position de Johnson qui peut être comparée à celle d'un « médecin » traitant les problèmes des sciences cognitives de la première génération. La deuxième métaphore est exposée par Fodor qui considère le pragmatisme comme un « rhume » pour les sciences cognitives. En dehors des métaphores, ce débat est particulièrement intéressant

compte tenu de l'opposition à l'égard de pragmatisme entre leurs théories, appelée TRE et TEI. Afin de bien comprendre leurs différentes valeurs théoriques, cette étude s'intéressera tout particulièrement aux travaux de Johnson et de Fodor.

Suite à cela, il apparaît comme une évidence que les points de vue de Johnson et de Fodor se doivent d'être analysés, et que leurs compréhensions du pragmatisme nécessitent des précisions. Premièrement, l'opposition de Johnson sur la notion de la représentation n'est pas aussi forte quand il s'agit de critiquer le sens essentiel de la théorie représentationnelle de l'esprit [RTM]. Deuxièmement, l'opposition de Fodor sur les notions de l'action et du pragmatisme sont différentes des idées classiques du pragmatisme. Cependant, cette recherche entre les théories de Johnson et de Fodor, est loin d'être la plus importante. On se demande en effet, si en plus de ces différences théoriques entre les écoles de pensée en sciences cognitives, il n'y aurait pas encore d'autres problèmes qui concerneraient leur compréhension du pragmatisme. Cette absence de consensus à l'égard de la définition du pragmatisme a suscité l'intérêt ainsi que le scepticisme. Ainsi, il manque sans doute une connaissance indéniable du pragmatisme dans le domaine des sciences cognitives. De plus, l'action en tant que concept pragmatiste est importante, mais elle n'est peut-être pas si essentielle dans les pensées originales du pragmatisme.

En substance, si cette thèse a un objectif très précis, on espère qu'elle pourra aussi inciter à repenser et remettre en question la valeur du pragmatisme, elle pourrait ainsi en effet apporter aux sciences cognitives une sorte de force de changement de paradigme. En ce sens, que le pragmatisme soit considéré comme un « médecin » ou comme un « rhume», le plus important et le plus difficile reste à savoir comment l'obtenir. Par conséquent, cette étude considère la popularité du pragmatisme dans les sciences cognitives comme un tournant encore controversé. S'il n'est pas encore bien défini de nos jours, il semble que cela se clarifiera dans les années prochaines. Ces recherches vont donc tenter de démontrer le rôle du pragmatisme dans le cadre de la philosophique classique, afin d'expliquer les nouveaux développements des sciences cognitives. Ceci constitue la première étape permettant de voir si le pragmatisme peut vraiment jouer ce rôle essentiel et comment le faire dans les recherches prochaines.

Qui plus est, la confusion sur la nature du pragmatisme n'est pas seulement un problème pour les chercheurs en sciences cognitives, mais un problème général aussi pour les pragmatistes eux-mêmes. En effet, rares sont les personnes qui connaissent la définition précise du pragmatisme, et pourtant, les influences de celui-ci sont très larges. Ce problème doit être reconsidéré dans l'histoire même de ce pragmatisme. Ainsi, dans les deux premiers chapitres de cette étude, seront présentées les idées du pragmatisme du point de vue des sciences cognitives, suite à quoi on évoluera vers « une vue pragmatiste sur la cognition » afin d'étudier les apports positifs possibles au pragmatisme de Peirce à la fois de « l'esprit actif » et de « l'esprit cognitif ». Avant cette étape finale, il sera bien sûr nécessaire de définir précisément le pragmatisme. De même, on se demandera pourquoi les chercheurs en sciences cognitives interprètent le pragmatisme différemment et à bien des égards ? Même si leurs théories de la cognition sont différentes, pourquoi le pragmatisme a été présenté particulièrement ?

En théorie, il ne devrait pas y avoir de problème à traiter du pragmatisme dans des recherches sur la cognition. Afin de développer un tournant important en sciences cognitives, les explorations et clarifications doivent être réalisées à partir d'une rétrospection particulière du « pragmatisme classique ». Toutefois, lorsque sa valeur philosophique est redécouverte, les problèmes intrinsèques du pragmatisme et même son histoire complexe se doivent être également exposés.

Grâce à l'analyse perspicace de James Campbell, on pourra définir les raisons internes et externes qui expliquent l'histoire du pragmatisme. On s'intéressera aussi à l'analyse sur le développement initial du pragmatisme du penseur A. C. Armstrong. Enfin, seront examinées en détail, les idées du pragmatisme et trois catégories systémiques des doctrines pragmatistes seront au final présentées. Ces idées sont diffusées et ré-illustrées par James Campbell en 2011, Arthur O. Lovejoy en 1908 et J. E. Boodin en 1909. Il est indéniable que la compréhension du pragmatisme est déterminée dans une large mesure par les idées des principaux pragmatistes et certains de leurs points de vue. Cependant, souvent d'une manière trop simpliste et étroite, il semble que nombre de personnes confondent souvent les pensées pragmatiques et pragmatistes avec les théories de la vérité ou de la valeur qu'elles impliquent. Cette

impression première est un problème récurrent dans l'histoire du pragmatisme. Par conséquent, après avoir effectué une clarification historique du pragmatisme on explorera de façon théorique les pensées originales et les principes fondamentaux du pragmatisme.

Seront donc présentés les cinq principaux pragmatistes, à savoir Charles S. Peirce, William James, John Dewey, F. C. S. Schiller, et George H. Mead. Il apparaîtra alors que les idées des trois premiers donnent toute sa richesse et sa profondeur au pragmatisme des autres disciplines. A cette étape, il est important de préciser cependant, qu'une démarche différente sera prise en présentant leurs pensées. Ayant choisi plusieurs articles permettant de discerner les définitions et les caractéristiques essentielles du pragmatisme, les différences entre le pragmatisme de Peirce et le pragmatisme de James via le point de vue de Dewey, seront analysées. En tant que sujets de débats actuels, le pragmatisme de James et le pragmatisme de Dewey sont souvent cités ensemble sans faire de distinction par les pragmatistes cognitifs et on parle alors du pragmatisme « James-Dewey ». Pourtant, il existe bien une différence entre les deux pragmatismes. Qui plus est, la position de Dewey est plus proche de celle de Peirce. Il semble que dans l'histoire du pragmatisme, Peirce soit le « fondateur », James le « leader » et Dewey le « médiateur ». Dewey permettrait ainsi de révéler les variations internes au sein de la tradition pragmatiste.

Même si les différences entre le pragmatisme Peircien et le pragmatisme Jamesien sont évidentes et importantes, il est aussi important de noter les différences entre les idées de James et celles de Dewey qui sont vitales pour vérifier et évaluer les présentes théories du pragmatisme cognitif. Suite à cela, afin d'enrichir le point de vue du pragmatisme sur la complexité humaine, on présentera l'humanisme de Schiller en parallèle à une présentation de Johnson. On finira par le pragmatisme de Mead qui permettra de combler le vide que le pragmatisme classique laisse dans la recherche scientifique de cognition des Engel et ses collègues.

En dehors des idées de ces cinq principaux pragmatistes, d'autres idées importantes se devront d'être étudiées, lors de futures recherches par les pragmatistes cognitifs. Cependant, le pragmatisme de Peirce, qui est lui-même le fondateur de l'idée de

pragmatisme sera tout de même présenté. Le fait est que ses idées sont négligées par les défenseurs du « pragmatisme cognitif » et aussi par ceux du « cognitivisme anti-pragmatisme». C'est un problème qui permet de vérifier si le pragmatisme cognitif est vraiment signifiant pour les sciences cognitives. Il pourrait y avoir une troisième possibilité qui sera ici mise en évidence lors d'une rétrospection de la philosophie de Peirce pour les sciences cognitives, ayant rencontré un tournant significatif.

Comme cela a déjà été expliqué ci-dessus, la TEI de Johnson et la TRE de Fodor ont négligé la théorie de Peirce. Cet aspect implique que le pragmatisme de Peirce est différent pour toutes leurs théories. De plus, il est, peut-être, gênant pour les chercheurs en sciences cognitives d'employer la philosophie Peircienne et ceci est un problème crucial qu'il est important d'analyser. Tout ceci précédera une présentation de l'approche Peircienne, en parallèle au débat entre Johnson et Fodor. Il faut en effet se demander pourquoi Peirce est omis par un si grand nombre de chercheurs en sciences cognitives sans qu'ils s'en expliquent.

Tandis que certains philosophes, comme Jean-Michel Roy en 2014, suggèrent une distinction entre un « tournant pragmatiste » [pragmatist turn] et un « tournant pragmatique » [pragmatic turn], cette thèse tentera une approche différente. Ainsi, une troisième hypothèse sera proposée, à savoir un « tournant pragmaticiste » [pragmaticiste turn] prenant racine dans la théorie de « pragmaticisme » de Peirce. Ce tournant pourra avoir ainsi plusieurs implications pour les sciences cognitives. Les deux théories de la représentation et de l'action sur la définition de la cognition bénéficient peut-être de la philosophie Peircienne car elle offre de nombreux choix non exclusifs. Certes, cette étude n'a pas la prétention de vouloir changer la direction du mouvement des sciences cognitives à travers ce tournant pragmaticiste. Au contraire, un tournant significatif doit offrir une meilleure compréhension de la cognition. Le pragmatiste de Peirce peut ainsi jouer ce rôle et permettre de mieux concevoir la nature de l'esprit actif et de l'esprit cognitif. Si le concept de « l'action » est l'idée centrale du pragmatisme en général, alors le concept de « l'habitude » est l'idée la plus importante chez Peirce. De même, si la représentation et l'action sont des concepts opposés sur la définition de la cognition, la notion d'habitude a la possibilité de dissoudre les tensions entre ces

deux points de vue opposés. Pour Peirce, l'habitude joue un double rôle de croyance [la croyance-habitude] et d'action [l'habitude de l'action].

Pour finir, on peut concevoir que la position de cette thèse repose sur une perceptive du « pragmatisme-néo-classique ». Afin de mieux percevoir la situation des sciences cognitives. Cette position est à différencier de celle du pragmatisme cognitif d'un côté, et celle du néo-pragmatisme d'un autre côté. Qui plus est, cette position peut aussi améliorer la relation entre la TRE et la TEI et ainsi présenter par les points de vue du pragmatisme classique toute comme sa compréhension de la nature de la cognition et de l'esprit. C'est aussi la raison pour laquelle le pragmatisme est essentiellement important pour permettre à un tournant dans le domaine des sciences cognitives de voir le jour. Pour Peirce, le pragmatisme en tant que philosophie pourrait se révéler être aussi importante pour les penseurs en sciences cognitives que pour les scientifiques travaillant dans les laboratoires.

Introduction

The Searching Road: Exposition of General Topics

Although cognitive science is among the most frequently and heavily debated topics in philosophy, the boundaries between what is normally considered to lie within the scope of cognitive science and what is not, remains unclear.[1] As Jerry Fodor once noted, there exists enough confusion within the field that even cognitive scientists themselves are unsure as to what falls under the purview of cognitive science.[2] Though Fodor's representational theory of mind is also subject to a similar criticism of having unclear boundaries, he is nonetheless correct in this point.

Despite the relatively new terminology, cognitive science is in fact not an entirely new field. It borrowed, or inherited topics, discussions, and problems from earlier discussions in epistemology and philosophy of mind. In spite of the efforts made for the identification of mental contents and cognitive objects through neuroscience, the gap between mental qualities and material qualities remains intact. To make things more complicated, in thinking about problems of mind, we simply cannot ignore many other relations such as those between mind and body,[3] mind and brain,[4] the triadic relation among body, mind and brain,[5] among body, mind and world,[6] and, more importantly, the relation among body, mind, and environment.[7]

The perennial philosophical controversy of naturalistic reductionism does not delegitimize the research methodology of cognitive science, which aims at the onset to answer, in a scientific manner, the questions posed by the very existence of the mind and intelligence. This situation does not change much even when the ongoing process

[1] Cf. Adams 2010.
[2] Cf. Fodor Jan., 1985.
[3] Cf. Kirk 2003.
[4] Cf. Rochwell 2005.
[5] Cf. Glannon 2011.
[6] Cf. Putnam 1999.
[7] Cf. Barrett 2011.

of specialization has resulted in ever-narrowing branches in the field of cognitive science, while the debates between these branches are no less agitated than those from outside.

Generally speaking, cognitive science's object of inquiry is the human *brain* and *mind*. As typical of interdisciplinary discourse, cognitive science is a collective enterprise made up of psychologists, neuroscientists, computer scientists, anthropologists, philosophers, and linguists, etc.[8] Tensions between cognition programs and mind sciences, as well as those between brain and mind, persist throughout the development of cognitive science. Neuroscience can tell us the correspondence between brain states and mental states, namely that between neurological and cognitive states. Such a neuroscientific approach provides the research basis for cognitive science and paves the way for a fundamentally naturalistic explanation of mind-body and mind-brain relations.

More broadly, cognitive science covers research into many aspects of both *mind* and *action*. An important part of cognitive science is devoted to experiments and conceptual research on the capacity of cognition and action under the assumption of mind as machine.[9] Despite the similarity in subject matter, cognitive science is distinguished from psychology by the fact that the former attempts to provide functionalist explanations of mental states in a way the latter does not. As a matter of fact, the representational theory of mind (RTM) advocated by Fodor—which he calls 'speculative psychology'[10]—is based on criticism of behaviorism. Contrary to behaviorists, who focus on the analysis of observable behaviors of an organism as well as their relation to mental states, representationalists begin by analyzing intelligent phenomena in order to assume the contents of the mind.

As a representational realist, Fodor appeals to a *radically indirect* way of looking at the world; one in which both the possibility of sensory knowledge[11] and the validity of action language are rejected.[12] Fodor is defending an independent internal and

[8] Cf. Kolak et al. 2006.
[9] Cf. Boden 2006, p. 9.
[10] Cf. Fodor 1975.
[11] Cf. Fodor 1966.
[12] Cf. Fodor 1970.

private linguistic system. It seems to him that the cognitive process is identical to 'thinking,' which is the basis of the mental structure built upon them.[13] Echoing this Fodorian train of thought, cognitive psychology has become dominant in the field of cognitive science so much so that most philosophically-minded writers are undertaking projects that contribute to discovery of the connections between mental contents, as well as links between the mind and the external world. Such a bridging-the-gap approach is further composed of two alternate, and possibly opposite, approaches: the first is to claim that the mind is the internalization of the external world, whereas the second is the view that the world is the externalization of the mind. The opposition between these two approaches is reminiscent of an earlier debate between empiricism and rationalism. Since the epistemological turn after Descartes, the questions regarding the ultimate source of knowledge have become relatively independent. The inquiry into the nature of mind as is currently unfolding in cognitive science, can be seen as the continuation of this long-lasting process.

It can be said that both the advent of the notion of artificial intelligence and the arrival of computer science have tremendously changed our understanding of the process of 'thinking,' and this change led directly to the first wave of cognitive science. On the one hand, since computers are able to perform, with extraordinary efficiency, many cognition-involving tasks that formerly could only be performed by human beings, thinking is no longer regarded as solely occurring in the brain. On the other hand, thinking is not a purely mental process: it can occur in the body and even be realized by computer emulation. In this sense, cognition is thus both an internal state of thinking and a process. It follows from this *computer metaphor* that the mind-body problem is still a controversial conundrum for epistemology, cognitive science, and philosophy of mind.

Just as the possibility of a total substitution of human mind by computer programs is out of the question—at least in the near future, the cognitivism based on mental representation cannot be freed from the dualist dilemma.[14] To some extent, the theory

[13] Cf. Fodor 1987.
[14] Cf. Uttal 2004.

does not solve *real problems* in cognitive science; instead, what it suggests is an idealized model. Because of this predicament, a transition from cognitivism to post-cognitivism[15] took place in the 1990s, with one of the most well-known ideas in this transition being the *embodied cognition movement*.[16] The purpose of this movement was to reveal the adoption of an interactive, embodied, embedded and extended view of cognition and behavior. Broadly speaking, the embodied theory in cognitive science is not only inspired by phenomenology and existentialism,[17] it is also significantly influenced by American pragmatism.[18] In fact, it can be said that the pragmatist approach has become a harbinger of a new era in cognitive science.

More precisely, I am not going to reconstruct the relationship between cognitive science and pragmatism, but rather embark upon a philosophical journey revisiting the long-lasting questions of cognitive science. To understand the nature of mind is to conceive of the contents of the mind. Since the mind is a constantly changing and continuous process, how to determine[19] and clarify[20] its contents is the central problem to be solved in Peirce's pragmatism, also known as *pragmaticism*. It seems to Peirce that every thought is temporary and there is neither an endpoint nor a determinate target in the functioning mind. It is in this sense that Fodor's understanding of pragmatism is somewhat biased: it seems to Fodor that the explanation given by pragmatism is thought to be infallible, and this impoverishes its theoretical significance in reality. Thus pragmatism is useful rather than theoretical meaningful.[21] Fodor rejects pragmatism. However, for Peirce, on the contrary, although the process of cognition is infinite, we can nonetheless have definite objectives, and the pursuit of such an objective and reality is often acceptable.

In short, what I am attempting is to examine the nature of mind in an *invisible* manner. The resultant theory, however, would be a descriptive and explanatory one, for in a strict sense, I am not going to go into great depth in analyzing the essence of the

[15] Cf. Leidlmair 2009.
[16] Cf. Calvo and Gomila 2008.
[17] Cf. Varela et al. 1993.
[18] Cf. Lakoff and Johnson 1999.
[19] Cf. Peirce 1877; Buchler (ed.) 1940.
[20] Cf. Peirce 1878; Buchler (ed.) 1940.
[21] Cf. Fodor 2004.

mental state and the mental process. Instead, what I am trying to answer is the question of how *mental contents* are possible and in what manner are they connected with each other. Instead of confining mental properties to intelligent phenomena and cognition capacity, the essence of mind will be regard as a possibility. The most essential character of the mind is its capacity to *blur* the boundary between possible worlds and impossible ones. It is not very often that we lose our way in the physical world, whereas finding ourselves lost in the mental world is much more frequent. When dealing with real-world problems we are very likely to find specific solutions, whereas in many cognitive processes one thought is always disturbed and substituted by other thoughts, thus making thought processes more like an endless zigzagging contour than a straight and linear pathway. This is partly why pragmatists tend to discuss topics such as truth and reality, and distinguish the notion of meaningful from that of true.

Furthermore, this paper is not in the position of identifying the correspondence between the compositional contents of mind and the organic components of the brain. I assume, without further questioning, the 'hardware' of the brain exists as the basis of the software of the mind, I take this relation as a viable metaphor. Neither am I interested in repeating the experiments analyzed in recent discussions of cognitive science. Also, I am not going to philosophically question or reject the concepts used by scientists, for instance, 'intentional action;' it seems like they do not differ the notion of intentionality and consciousness. I do not intend to review and debate the ongoing experiments. As a matter of fact, for scientists, distinguishing between notions such as feeling, sensation, and perception, does not lead to any difference in the experimental results. On the contrary, I attempt to describe and explain the characteristics of the mind in a simple and straightforward manner. For although scientific theories and experiments are perfectly workable and verifiable, their interpretations—that is, the grasp of the result on conceptual level—are not as straightforward as we tend to assume. Even verified results call for a more insightful understanding, rather than merely recoding and memorizing. In Peirceian terminology, the mind is both rational and reasonable, but it is not easy to distinguish *rationality* and *reasonability* from the outside, since the mind has the ability to *hide*. From the external point of view, this is

exactly because of the richness and complexity of mental contents: the connection between mental events are not always contiguous and rule-abiding. Instead, they are often fragmented and full of aberrations.[22]

The questions in the philosophy of mind attract the attention of not only scientists. In the field of cognitive science, both cognitive scientists and philosophers are concerned with the same question: namely, what are the causes of *embodied cognition*? In this respect, it seems that the results of experiments in scientific communities do not contradict philosophical reflection on the subject. Therefore, is every scientist therefore a philosopher? Peirce distinguishes two kinds of man in the field of science: 'practical man' and 'scientific man.'[23] The former's work has a predetermined objective, whereas the latter's work is guided by the highest ideal. It is obvious that the effect of mental process does not work on actions directly and lead to ideal behavior. On the contrary, thinking constrains the thinkers themselves. It seems to Peirce that the law of mind is *self-control* and the realization of *self-satisfaction*.[24]

Regardless of whether the existence of mental contents is verifiable or not, the question of mental contents remains and will continue to remain an important topic in the field. The demystification of mind through the advancement of science, but even so, the mind is still not a determinate object, for its contents cannot be directly accessed. Because of this, observation is an important method for the pragmatist to access the mind.[25] From a pragmatist point of view, it is beside the point to try to see mental contents by opening the 'container' of the mind. Because even if one opens the container, it is still difficult to interpret and understand what these elements are. Besides, how can we guarantee that other containers all have the same things inside? In other words, cognitive science will inevitably run into the problem of other minds.[26] Other minds are not readily perceptible for us. However, for any philosophical mind, it is almost impossible not to have any suspicion about other minds.[27]

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[22] Cf. Reber 1993.
[23] Cf. Peirce 1898; Buchler (ed.) 1940.
[24] Cf. Peirce July1903.
[25] Cf. Peirce 1898; Buchler (ed.) 1940.
[26] Cf. Dretske 1973.
[27] Cf. Dretske 1971.

Let us return to the topic at hand: the Representational Theory of Mind (RTM) mainly concerns the relation between cognitive subject and mental representation. The Embodied Theory of Mind (ETM) suggests that unlike a computer, the human mind is constrained and closely related with the body. In other words, the mind is not inside the machine; it is embodied in the living creature. Different from the internal mechanism of computers, mental events are not reducible. For both the representational theory and embodied theory, mental contents are nevertheless one of the key questions to explain.

In the representational and computational camps, there are two important figures: Zenon Pylyshyn and Jerry Fodor; they share many points of view. According to Pylyshyn, the central problem of cognitive science is to figure out 'what is in the mind.'[28] In this respect, it is different from both psychology and neuroscience. For Fodor, the most urgent difficulty facing cognitive science concerns how to understand intentional contents.[29] Fodor gives RTM as his explanation for the mental states and mental process. But the problem is, as one of the most prominent thinkers in the early period of cognitive science, why does Fodor reject pragmatism? Furthermore, why does Mark Johnson take pragmatism as the theoretical basis for the upcoming 'second generation cognitive science?' What took place during this time period within the discipline of cognitive science? Does such a change result from mere disagreement between different schools of thought? Or does it signal the coming of a future trend? I will try to address all these questions in the following chapters.

In fact, there has never been a 'face to face' debate between Johnson and Fodor. The reason for this is largely a lack of any serious reply on the part of Fodor. This fact also indicates the difference between Fodor and Johnson with respect to their influences. The former's LOT (Language of Thought) theory has a much broader audience in the field than the CMT (Conceptual Metaphor Theory) of the latter. Furthermore, it can be seen that even in the ETM of Johnson, the influence of American pragmatism is still less prominent than that of late Wittgensteinian pragmatics and semantics, and behaviorism. Despite this, the opposition between Fodor and Johnson with regard to

[28] Cf. Pylyshyn 1999.
[29] Cf. Fodor 2008.

pragmatism shows typical features of philosophical debates, which is centered around understanding and the definition of certain key terms such as *representation* and *action*. That is why I have virtually arranged the debate on the topic. For on the one hand it would enhance our understanding of the tension between cognitive science and pragmatism, and on the other we would gain a better position from which to judge the relations between cognitive science in its classical sense and the upcoming 'pragmatic turn' that is gaining popularity throughout this field.

The fact that both the expressions 'pragmatic turn' and 'pragmatist turn' are currently being used interchangeably reflects the immaturity of the movement itself. I treat the rise of pragmatist thinking in cognitive science as a still controversial tendency, which means that it is far from clear what it will become in the following years or decades—that is, both positive and negative results are to be expected.[30]

Before diving into the lengthy discussion, I will introduce beforehand two types of pragmatist thought: one comes from the philosophy of Mark Johnson;[31] the other consists of the more science-oriented ideas of Andreas K. Engel et al.[32] Both schools contain current pragmatist influences on cognitive science, and both pose an apparent antithesis against the theory of Fodor. It can be said that the opposition between Johnson and Fodor is far from an isolated phenomena; instead, it is a symptom of a broader theoretical tension within the field itself. I hope that this paper may encourage the rethinking of both the value of pragmatism and the tension it might bring into cognitive science as a paradigm-changing force.

But even when pragmatism has become a controversial topic, the interpretation of pragmatism is still problematic. And the pragmatism in the writings of Mark Johnson and Andreas K. Engel is also limited in this regard. For instance, Johnson's discussion

[30] 'Cognitive pragmatism' is discussed as a central topic of a series of workshops (2010-2014) organized by JORISS between L'ENS Lyon and L'ECNU. There is a joint program to explore the relation between cognitive science and pragmatist tradition between the departments of ENS de Lyon and East China Normal University, and various researches of different backgrounds based on the reflection of pragmatism have been undertaken by many philosophers. My thesis advisers Jean-Michel Roy and Zhenhua Yu are the principle organizers between those institutions of France and China. The international workshops are organized in every year trying to move this pragmatist movement in cognitive science and epistemology for both theoretical and historical studies of human cognition.

[31] Cf. Johnson 2006.

[32] Cf. Engel et al. 2013.

mainly concentrates on the psychology and sociology of William James and John Dewey, while Engel et al. are inspired by John Dewey and George H. Mead, while remaining untouched by the latter's classical ideas of pragmatism. In fact, what really interested them is 'cognitive pragmatism,' a narrower stream branching from pragmatism in broad sense. Cognitive pragmatism is composed of 4E[33]—embodied, embedded, extended and enacted cognition, which is no less related to phenomenology.[34] Both the philosophies of Maurice Merleau-Ponty and Martin Heidegger are indeed very popular all over the world, and it is Hubert L. Dreyfus that who introduced this trend into cognitive science.[35]

The return of pragmatism to the central stage of cognitive science is not by accident. In fact, it echoes the earlier influence of phenomenology in the field.[36] Among the earlier pragmatists, Dewey's version of pragmatism has had the broadest influence in cognitive science, making him one of the key figures in my following discussion. There are several reasons for Dewey's popularity: first of all, Dewey is the only pragmatist (in the classical sense) who is cited by both Johnson and Engel et al. Secondly, relative to other pragmatists, Dewey's theory is most closely and directly related with the neopragmatism of Richard Rorty and Hilary Putnam,[37] who are well-known in philosophy of mind and language, especially in France.[38] And thirdly, his pragmatist view, together with Rorty and Putnam, combines well with phenomenology, and further inspires the concept of enactivism.[39]

But Peirce is our real protagonist, and I will discuss the relation between cognitive science and Peirce's pragmatism. Writers such as Pierre Steiner also underscores the importance of Peirce's theory to cognitive science.[40] Although Steiner gives an outline of the relation of pragmatism and cognitive science,[41] he does not address in much depth the contradictions within pragmatism itself. However, the difference between

[33] Cf. Menary 2010.
[34] Cf. Rowlands 2010.
[35] Cf. Dreyfus 2006.
[36] Cf. Dreyfus 1986; 1991.
[37] Cf. Hildebrand 2003.
[38] Cf. Jean-Pierre 2010.
[39] Cf. Menary 2006.
[40] Cf. Steiner 2013.
[41] Cf. Steiner 2008; 2013.

Deweyan pragmatism and Jamesian pragmatism should be noticed.

I will not undertake a complete survey of the relation between cognitive science and pragmatism. Instead, a single 'virtual' debate between Mark Johnson and Jerry Fodor seems sufficient to clarify some of the key questions on this topic. One major point is that neither Johnson nor Fodor has a clearly defined notion of pragmatism in mind when they talk about pragmatism. In other words, it is highly doubtful whether the pragmatism supported by Johnson and the one rejected by Fodor are in fact one and the same. For instance, instead of classical pragmatism per se, Fodor's main objection to pragmatism is aimed at the *concept pragmatism* and *logical pragmatism*, the pragmatists are known as of Paul Churchland[42] and Robert Brandom.[43] Thus the question remains: what is the real nature of pragmatism?

Indeed, the confusion surrounding the nature of pragmatism is not only a problem for cognitive scientists, but also a problem more generally. That is to say, people do not know the precise definition of pragmatism, and yet its influence is very broad. Moreover, an indispensable ingredient in any history of philosophy textbook, pragmatism has been known by many as the prototypical American philosophy,[44] and it has had a wide influence across various fields of social science such as epistemology, logic, metaphysics, science and technology, aesthetics, ethics, social theory, politics, education, economics, race, religion, and more.[45] According to Richard J. Bernstein, the 20th century is the century of pragmatism.[46] Considering this background information, it is almost impossible that there would be no connection between pragmatism and its cognitive science corollary.

Both cognitive science and pragmatism have obtained quasi-mainstream status in Anglo-Saxon philosophy. Many cognitive scientists coming from the same academic background might have already become implicit pragmatists without being aware of it.[47] In fact, as a scientist, Peirce began reflecting on philosophy because he inquired

[42] Cf. Churchland Feb., 1981.
[43] Cf. Brandom 2008.
[44] Cf. Pratt 2002.
[45] Cf. Pihlström 2011.
[46] Cf. Bernstein; Davaney and Frisina (eds.) 2006.
[47] Cf. Pihlström 1998.

why some of the greatest scientists feel confusion regarding philosophical questions. Considering the close relation between science and pragmatism, it is rather surprising that cognitive science ignored pragmatist ideas during its early development. The reason for this oversight is likely because cognitive science, like many properly scientific projects, largely ignored philosophy as a whole. A second reason might be that the ideas of pragmatism were not considered clear enough to be of much use.

Thanks to the analysis of James Campbell,[48] we can see the reasons, both internal and external, for the theoretical debate among pragmatist themselves. While the summary made by A.C. Armstrong lays bare the situations in the early development of pragmatism,[49] it might be the case that the question of the definition of pragmatism becomes even more acute after Campbell and Armstrong's research than before. Thus I will revisit some of these historical questions in due course during the following discussion.

It is undeniable that the understanding of pragmatism is determined to a large extent by the ideas of only a few leading figures. For instance, one often identifies, in a narrow and oversimplified manner, pragmatist thoughts with the truth theory and/or value theory it implies or advocates. This misleading prima facie impression indicates the important problem underneath: perhaps it is caused by theoretical difficulties during the evolution of the ideas, or perhaps the barricades that bar it from deeper and more paradigmatic changes are historical in nature. I am going to explore both of these in the following chapters.

The question becomes more complicated due to misunderstandings among pragmatist philosophers themselves, which probably resulted from the richness of its contents. Peirce and James blame each other for distorting the interpretation of the other's views. The numerous debates and contradictions add to the feeling of confusion. In fact, it seems more appropriate to see pragmatism *not* as a monolithic single coherent theory, but as a loosely characterized trend of philosophizing, for what it produces is not a systematic general theory, but rather a sustainable method of reasoning.

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[48] Cf. Campbell 2011; Campbell 2007.
[49] Cf. Armstrong, 1908.

In this respect, both the theory of 'second-generation cognitive science' from Mark Johnson and that of the 'pragmatic turn' from Andreas K. Engel et al. are helpful for revisiting the origins of pragmatism. Following the clues of Johnson and Engel, one is able to appreciate the useful ideas of James, Dewey and Mead. Furthermore, I will also introduce comments from Peirce and F. C. S. Schiller in: What is Pragmatism? Schiller contends that *humanism* is the ultimate form that pragmatism will take. Since reflections on the complexity of human understanding, as seen in the embodied theory of Mark Johnson[50] and Francisco J. Varela[51] is a crucial part of their theory, it would seem reasonable to add some of Schiller's views on pragmatism and humanism to the discussion.

Such revisiting of the historical dimension of pragmatism is necessary in order to grasp its true nature. In fact, during this revisiting many discussions of pragmatists have been discovered on topics such as cognition and the mind—discussions which might otherwise have never received their due attention.

While some writers, such as Jean-Michel Roy, suggest a distinction between the *pragmatist* turn and the *pragmatic* turn, I take a different approach here. In fact, I advocate for a third way of seeing it, namely a *pragmaticist* turn with its root in the theory of Peirce. The pragmaticist turn has multiple effects on cognitive science: it is different from mere criticism of cognitive science's first generation and corresponding advocacy on behalf of a *singular* second generation. Instead, because both representation-oriented and action-oriented cognition do not necessarily contradict each other, taken together they provide us with many non-exclusive choices. Moreover, the second-generation cognitive science claimed by Johnson has too wide a range, and this to some extent impairs both the depth and sharpness of philosophical thinking. On the other extreme, Fodor's idea seems unduly radical and I argue that he nearly throws the baby out with the bathwater.

In whatever sense, there must be some limits established in the research of

[50] Cf. Johnson 2007.
[51] Cf. Maturana and Varela 1987.

cognition.[52] The purpose of the pragmaticist turn is not to change the direction of cognitive science, but rather to achieve a better understanding of cognition—which means both gaining a better grasp of the relation between pragmatism and cognitive science, and arriving at a non-biased view of the contradictions between them.

It seems that, given certain modifications, the pragmatist legacy of Peirce is helpful for both ETM and RTM. To do this, it is necessary that, first of all, one insert a Peirceian view into the seven intersecting topics of second generation cognitive science in addition to the Jamesian and Deweyan pragmatism, including debates on naturalism, reductionism, dualism, embodied meaning, feeling, etc.[53] Secondly, I also try to bring Peirceian semiotics and logics into Fodor's theory of mental representation, in particular the theory of intentional content and the compositionality of thought. Finally and in more creative fashion, I will suggest a theory of habits, according to which cognition is explained not only through representation or action, but, more essentially, through the habit of mind. Such habit theory is akin to the notion of enaction,[54] which in a certain sense has already appeared, though with different name, in Peirce' writings as *transsociation*.

If *action* is the central idea of *pragmatism*, then the core notion of *pragmaticism* would be *habit*. Further, if representation and action are opposing concepts, then the notion of habit has the potential of dissolving the difficult tension between them. For Peirce, habit plays a double role of both action (the habit of action) and belief (belief-action). In fact, everything has the disposition of forming habits or showing habitual phenomena. Moreover, there exists another reason for adopting habit theory in explaining cognition: it effectively blocks the possible regression from 'enactivism' or 'actionism' into behaviorism.

If the above survey reads too much like a list of existing research, then the concept of *hideability* would be the primary original feature of this dissertation. The idea of hideability comes from the puzzlement about the problem of other minds: the contents

[52] Cf. Adams and Aizawa 2010.
[53] Cf. Johnson 2006.
[54] Cf. Stewart et al. 2010.

of other minds are not directly perceptible not only because of the imperceptibility of mind, but more importantly because of their intrinsic ability to hide from other minds. Such *hiddenness* is an excellent example of embodiment. Although this idea is interesting, it cannot take on the weight of a new theory. Therefore, I may introduce some of these ideas as an extended project for the future.

Essentially, the content of the mind cannot be completely perceived or predicted. Thus the mind has a double unknowability: on the one hand, the mind has invisibility, and on the other, there is an intentional *hiddenability*, which, unlike hideability, is a deliberate action. Unlike these two features, the notion of hideability I am proposing is an essential character of the mind that is neutral with respect to one's intent in hiding her thinking. Just as a liar cannot directly prove that she is not lying, the mind cannot directly prove that it is not hiding some of its essential contents. In fact, this is not a problem of honesty, but a problem of *trust*. No one is naturally prone to solipsism, nor do I doubt the existence of other minds. Instead, I just have difficulty seeing their contents, which might not be intentionally hidden. For even when one honestly can express what she has in mind, it is always possible that the content of her mind is doubtable from other perspectives. If so, does it follow that the mind is intrinsically unknowable? To answer questions like this, I will explore the mechanisms that guide us in finding the hidden elements. Thus, in the final part of the paper, I will devise a hypothesis of a mental *hide-and-seek*.

Illustration courtesy of James Wang

Chapter One

The Rising Tide: Pragmatism in the Context of Contemporary Cognitive Science

At present, in the field of cognitive science, pragmatist theories such as cognitive pragmatism[55] have undergone a revival. This particular point of view embodies a different way of characterizing the nature of the mind. What it presents seems to be neither a picture nor an architectural rendering of the representable world, but rather an active movie of the living world. More precisely, that which is being studied includes not only the facts or states of the brain, but also the mental events and qualia in those current research programs. Thus, the framework of cognitive science is changing. As a discipline, cognitive science was born within the development of various scientific arenas, typically computer science. Through the work that has been done in the various fields dealing with research on the nature of cognition, it is now broadly expanding into many other fields of the human and social sciences. In this process of interdisciplinary expansion, the philosophical aspect is essential. In this chapter, I will explore how pragmatism contributes to cognitive science in this regard, lending the necessary philosophical frame of reference for explaining the expansion of the field.

In cognitive science, some of the crucial conceptions of the mind, such as the embodied mind, embedded mind, enacted mind, and extended mind,[56] are thought to be explicable and understandable from within earlier schools of thought: primarily phenomenology and existentialism. There is also now a growing tendency towards pragmatism. These inclinations suggest that cognitive science concerns not only the Anglo-Saxon tradition, but contemporary continental philosophy as well.[57] Rather than considering new generations of pragmatism such as *neopragmatism* or *neoclassical*

[55] Cf. Roy 2014.
[56] Cf. Menary 2010; Rowlands 2010.
[57] I believe that, after the linguistic (Chomsky, Fodor) and phenomenological (Dreyfus, Varela) 'turns' in the study of cognition and mind, the pragmatic/pragmatist, or 'pragmaticist' turn will form the next step in cognitive science.

pragmatism to be the most essential theoretical bases, some cognitive scientists have been discussing the more than century-old classical ideas of pragmatism. These two tendencies need to be further explored in order to elucidate the relation between cognitive science and pragmatism in more detail.

Furthermore, I will pose some basic questions. First, what does pragmatism mean to cognitive scientists and scientists? Second, what does pragmatism mean to philosophers? In particular, what are the meanings of the classical ideas of pragmatism as they are used by contemporary pragmatists? Third, how should one treat overlapping concepts and ideas between these two very different disciplines? It is perhaps the case that one may explore the same questions but in very different contexts.

Cognitive pragmatists as well as researchers from different domains are working in the same direction in cognition research. Both of them attempt to solve blatant problems in their respective fields by harkening back to the ideas of classical pragmatists. The pictures presented by these cognitive pragmatists are clear, but can be made even clearer. Clarity is indeed a fundamental conception of pragmatism. To begin, I will introduce two of the most common trends: 'second generation cognitive science' and the 'pragmatic turn.'

Philosophers and linguists such as Mark Johnson and George Lakoff have proposed 'second generation cognitive science,' a therapeutic approach to some of the most resilient questions in cognitive science.[58] The pragmatic turn has been advocated by scientists such as Andreas K. Engel et al.[59] whose work focuses more on laboratory research of the cognitive processes. These two theories share the same aims, given that both trends take a 'pragmatic approach' as their guiding principle for future developments in cognitive science and cognition research. As I intend to discuss the philosophical aspect of cognitive science and explore the connection between this philosophical trend and pragmatism, the following introduction and discussion will explore in greater detail the philosophy-bearing share of the ideas, and address the more scientific aspects more briefly and primarily as a supplement to the philosophy.

[58] Cf. Johnson and Lakoff 1999.
[59] Cf. Engel et al 2013.

1.1 Mark Johnson and 'second-generation cognitive science'

According to Mark Johnson,[60] there are two generations in the development of cognitive science and they can be distinguished by their differing views on the mind-body relation. In fact, the mind-body dilemma is not a problem for philosophers alone, but indeed for all disciplines. For example, a person may experience this kind of mind-body problem when their emotions are strong, but their ideas or theoretical understanding of their emotions are confused. These complex issues of human minds are increasingly being explored, but the difference is that cognitive pragmatists are trying to clarify some of these difficulties through empirical research. Johnson takes a special stance on pragmatism; in his opinion, American pragmatists challenge metaphysical dualism with the principle of *continuity* as well as multiple methods of investigating human experience regarding mind-body problem. As a result, Johnson recognizes the potential value of pragmatism, which could propel cognitive science towards a significant turning point in its development.

1.1.1 First-generation cognitive science

As Johnson explains, the first-generation cognitive science of the 1950s and 1960s drew from widely diverse fields such as analytic philosophy of mind, psychology, linguistics, model theory, computer science, and artificial intelligence. In these fields, functionalism—the predominant paradigm of the time—was used to explain the internal mechanisms of both machines and organisms. Cognitive states and processes on both the 'hardware' and 'wetware' levels were regarded as functions, and mental operations were understood as realized by formal programs. Therefore the proposition,

[60] Cf. Johnson 2006.

especially in linguistic form, was regarded as essential for the generation of meaning. Furthermore, formal logic and theories of propositional attitude were widely used to depict the mechanism by which and contents of the mind in which rational thought may be realized. However, this approach to understanding the mind is flawed, because the explanations of mind are 'disembodied' in the sense that the existence of the body does not play a role in the formation of the cognitive ability of minds. For Johnson, the body is important for understanding the mind. Moreover, rationality cannot be seen as a reducible form, but at an emergent point.

In first-generation cognitive science, located inside a body without benefiting its essence, the mind operates in a non-reflecting mechanical way not unlike that of machines that are capable of 'thinking' without feeling or emotion. These contents of the mind are so-called 'inner representations' that are unperceivable. It can be said that the depiction of these mental properties and their structure was the main work of first-generation cognitive science.

In short, the most crucial problem of first-generation cognitive science is that it was established on false dichotomies such as inner/outer, subject/object, mind/body, and self/world, etc. These assumptions were challenged by American pragmatists such as William James and John Dewey, whom Johnson regards the forerunners of embodied cognitive science. That is the most essential reason why Johnson advocates taking a pragmatist turn in the field of cognitive science. Compared with second-generation cognitive science, the former research program was disembodied, given that first-generation cognitive science conceived of the mind as an intelligent machine. By contrast, second-generation cognitive science rejects taking machines to a token of the mind; the body of the mind is flesh rather than physical.

1.1.2 Second-generation cognitive science

Second-generation cognitive scienc begins in the mid-1970s. It differs widely from

the earlier generation. As experimental research on cognition flooded in, a new wave of interdisciplinary discourse emerged that combined elements of linguistics, psychology, biology, computer science, and neuroscience. Of course, the fundamental questions of first-generation cognitive science remain a point of focus and the nature of mind is still a hot topic. But unlike the disembodied approach of the first generation, meaning, thought, and symbolic interaction come to be regarded as the overall result of the mind, mind-body, and their context and environment. As such, second generation cognitive science asserts that mind, body, and world—a world understand as living and inhabited rather than alienated from the minds that of which it is partly composed—should no longer be considered in isolation from one another.

Contrary to the disembodied approach, second-generation cognitive science embraces an embodied approach in which cognitive states are no longer understood simply as mental operations, but as a part of a larger whole, connected through organism-environment interactions. In this sense, cognition is understood as 'emergent rationality.' In Johnson's opinion, a non-dualistic and non-representationalist approach such as that of pragmatism boasts explanatory advantages that might prove helpful for the fledgling Embodied Theory of Mind (EMT), according to which the brain is not seen as a 'container.' In fact, the 'content' of the mind is more difficult to see than a normal componential part because the mind is not only contained in the brain/body, but also inseparable from it.

In short, second-generation embodied cognitive science can overcome the dualism dilemma by introducing a more holistic relation between mind-body and world (both natural and cultural); elements which are all essential to the formation of the minds of living creatures, and necessary for understanding their richness and complexity. As a result, the difference between first-generation *disembodied* cognitive science and second-generation *embodied* cognitive science is sharply delineated by Mark Johnson. Furthermore, his approach differs from that of Engel et al., whose point is less critical. For Johnson, the contradictions between the two generations are irreconcilable such that they ought to be seen as separate paradigms, while for the latter the rising trend of pragmatism can be better understood as a transition.

1.1.3 The distinction between first and second generation

According to Johnson, the characters of these two generations are very different. First of all, first-generation cognitive science was the result of cross-pollination across multiple disciplines, whereas the second generation was significantly catalyzed by the ongoing development in various experimental research programs. That is to say, the work of second-generation cognitive science is both conceivable and workable; it is both science and art. Indeed, this is also the crux of what pragmatists introduced into both theoretical and practical inquiry. For pragmatists, pragmatism is philosophy as useful art.

The second difference is that first-generation cognitive science abided by the fundamental methodology of traditional Anglo-American philosophy, while the second generation is no longer restricted to this single tradition. On the one hand, the second generation called most of the methodology of the first generation into question on empirical grounds. On the other hand, second-generation broadly extended the ideas of the ways of knowing mind multiply.

Although the main characteristics of the discipline have changed in the time between the first and second generations, their relation is indeed strong. It sees that all the experimental and theoretical researches in the later generation are also the attempt of answering the questions or overcoming the problems raised by its former generation. As a result, it is more proper to say that first-generation cognitive science is normatively extending to second-generation cognitive science.

Based on the requirement of workability, second-generation cognitive science requires a higher standard of both verifiability and understandability than its predecessor. Both of these qualities result from a shifted emphasis towards the ‘experiences’ of living creatures, which are quite different from the ‘operations’ of computers. Moreover, the second generation greatly expanded the range of the study

from cognition research focusing on the brain to that of the brain-body and even of the brain-body-environment in dynamic relations. In this new approach, the knowledge of cognition is not purely abstract or rational, but involves many concrete, practical and reasonable aspects of explanations. That is to say, what has been dealed with in the study of cognition as Johnson sees it is a way of understanding 'cognitive ability' rather than 'cognitive phenomena.' And for this challenge, cognition is understood *not* as 'representation,' but as 'action.' For proving that cognition is action, some ideas inspired by the American pragmatists have proven insightful in giving explanations.

In fact, many 'contemporary' pragmatists in the tradition of analytical philosophy, such as Hilary Putnam, are reluctant to engage in the discussion concerning 'the science of mind,' which they suspect is a kind of reductionism of spirit. Such a paradigm shift is probably the reason why Johnson's approach is more concerned with the ideas of earlier American pragmatists like James and Dewey rather than recent iterations such as neopragmatism.[61] Additionally, Johnson and Lakoff also challenge the formalism of analytic philosophy with their conception of second-generation cognitive science. For them, embodied ideas cannot be formalized by 'assuming tenets of formalist analytic philosophy.'[62] Furthermore, five typical assumptions of first-generation cognitive science are outlined:

> I. Functionalism: The mind is essentially disembodied; it can be studied fully independently of any knowledge of the body and brain, simply by looking at functional relations among concepts represented symbolically.
>
> II. Symbol manipulation: Cognitive operations, including all forms of thought, are formal operations on symbols without regard to what those symbols mean.
>
> III. Representational theory of meaning: Mental representations are symbolic; they get their meaning either by relations to other symbols or by relations to external reality.
>
> IV. Classical categories: Categories are defined by necessary and sufficient conditions.

[61] Johnson does not mention Rorty, who is another important neopragmatist. In fact, both Johnson and Rorty challenge the foundation of analytic philosophy.
[62] Cf. Johnson and Lakoff 1999, p. 78.

V. Literal meaning: All meaning is literal; no meaning is fundamentally metaphorical or imagistic.[63]

The above research of cognition came from 'a priori philosophy,' which Johnson rejects. That is to say, mental contents cannot be seen through references to pure propositions.

Through this lens, the divergence of these two generations of cognitive science is more than a matter of chronological division. What the second generation seeks is a convergence of evidence employing the broadest available range of different methodologies which has the potential to revise the problematically narrow views of the first generation. In other words, second-generation cognitive science explains and also faces the difficulties of explaining the nature of cognition by multiplying empirical proofs rather than using priori philosophical assumptions. The key points of the embodied view of second-generation are defined by Johnson.[64] However, this approach is very unique.

Johnson is a cognitive linguist, and he advocates Concept Metaphor Theory (CTM). In this chapter, I will expound on the study of second-generation cognitive science, which is a much broader domain, from this particular perspective of cognitive linguistics of Johnson. Moreover, this metaphorical approach is not especially relevant to pragmatism. Instead, I will explore the philosophical approach of cognitive science in a focused manner. Johnson defines the relation between cognitive science and philosophy, known as 'embodied philosophy.' In such a way that embodied philosophy is taken as true prior to empirical research; cognitive science is not expected to conform to assumptions. Insisted, Johnson's philosophy inquires about the richness of human understanding. For him, pragmatism might be the most appropriate philosophy for cognitive science with regard to explaining an embodied mind.

There was no cognitive science, in the present sense, during the time of James and Dewey, but these harbingers of pragmatism also predate the cognitive framework in

[63] Cf. *Idem*, p. 78.
[64] Cf. *Idem*, pp. 77-78.

their discussions on topics such as conscious states and knowledge. Although many early pragmatists are interested in science and psychology, this interest is indeed focused on the meaning of truth, which is a key point of debate in pragmatism. Some of those ideas remain thought-provoking even several decades later in contemporary cognitive science. Of course, in comparison with the condition of nineteenth-century scientists, today's experimental research is much more specialized and diversified. One of the most different points is that today the comparison is often made between the human brain and the computer, because the computer works in a way similar to the human brain, and its function is more powerful. (Indeed, almost every domain of science depends on representing and computing powers) That is to say, people from different eras both in and outside the laboratory may face the same philosophical difficulties in recognizing the content of the mind.

Contrasted with the 'inner theater' study of the mind, second-generation cognitive science seeks to answer the question of why cognition emerges and changes through the understanding of the nature of 'human experience.' Therefore, one can see that within all the clarifications above, the distinctions between two generations are not only a question of the time elapsed in between the two generations, but a result of a shift in perspectives which may be characterized as moving us beyond the 'intelligent machine' to the 'bodily creature.' Thus cognition is no longer understood on the level of abstraction, but in connection with the irreducible and complex meaning of the possibilities that can only be generated and understood by creatures. All of this amounts to a thematic change in the field, and according to Johnson are exemplified in seven topics that illustrate the convergence of pragmatism and cognitive science.

Topic One: naturalistic methods of the study of the human mind

According to Johnson, in a large part of cognition research mental naturalism follows the empirical methods of natural science in exploring human cognition and symbolic interaction. He distinguishes between two versions of naturalism: The first and more radical version is based on materialism and reductionism. And the second is

less reductionistic; a sort of mild naturalism. Radical naturalism refuses to accept any non-causal explanation, and it cannot accomodate supernatural entities or non-physical causes. However, moderate naturalism does not hold that natural science is the only proper methodology. Rather, it is just one of many critical and interpretive methods that are instrumental in explaining the full range of cognitive phenomena.

Between these two types of naturalisms, Johnson's less reductionistic stance is in explaining the complexities of human relations and experiences. As an inextricable part of the natural world, human cognition lies beyond natural properties. This less radical approach in second-generation cognitive science regards cognition as complex and explains mental events by providing neurophysiological accounts with considerations of the human complicity. This approach resembles the pragmatism of James and Dewey, given that both theirs and Johnson's approach explain the relationship between the naturalistic account of the brain and the moral and the spiritual account of mind-body by taking their natural properties into consideration as well.

Topic Two: Non-reductive explanations of mental events

According to Johnson, one of the advantages of pragmatism is its tolerance of multiple and intertwined layers of explanation. Indeed, such a multi-layered explanation is necessary for capturing the depth and complexity of human experience. As Johnson asserts, Dewey explains the meaning of 'experiencing processes' by viewing human experience as both a biological and a cultural matrix in which people are not only biological organisms, but more importantly social and cultural creatures. Therefore human cognition involves 'embodied meaning' that cannot be exhaustively explained only by naturalistic accounts. Both James and Dewey explain the tension between being *rational* and being *reasonable*. Moreover, it is also the latter that is usually used by human to prove the essence of rationality.

Therefore, a single-layer reductionism is not in the position of explaining the complexity of human experience, which is not only biological, but social-cultural as well. In other words, the complexity of cognitive phenomena calls for diverse empirical

methods. According to the EMT of Johnson, a possible explanation of human cognition and symbolic interaction includes neuroscience, linguistics, developmental psychology, cognitive psychology, anthropology and sociology.[65]

Topic Three: non-dualistic theory of mind

With its disembodied and formalist conceptualization of mind, first-generation cognitive science is dualistic. It assumes dichotomies between mind and body, cognitive and emotional, theoretical and practical. These dualistic views, according to Johnson, are unfruitful. On the contrary, second-generation cognitive science does not commit to metaphysical or epistemological dualism, nor does it assume the traditional mind-body split. Instead, it looks to the 'enaction' of Francisco J. Varela et al. to better to explain the nature of human experience.

> (1) Perception consists in perceptually guided action, and
>
> (2) Cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided.[66]

This means that when action is realized through the guidance of sensations, a cognitive structure of the agent will be constructed following the specific sensorimotor patterns. In this explanation, the acting perspective of human cognition is expressed in the guiding function of sensation. As a non-dualistic notion, enaction can replace the notion of 'interaction' between two entities. Since our experience is a continuous process, Johnson then uses the idea of 'body-mind' of Dewey in order to underline the embodied idea of 'experiential *transaction*,' whose function of connecting is better than *interaction*. Furthermore, the notion of 'continuity,' is also a key concept of pragmatism for explaining the complex and irreducible relations between different levels and forms. Due to the principle of continuity, every activity, both mental and physical, inner and

[65] Cf. Johnson 2006, p. 370.
[66] Cf. Varela et al. 1993, p. 173.

outside, is continuous—so much so that explanations of different aspects are included as part of a continuous overall explanation. Dewey says:

> There is no breach of continuity between operations of inquiry and biological operations and physical operations. 'Continuity' … means that rational operations *grow out of* organic activities, without being identical with that from which they emerge.[67]

The same inclination towards non-dualistic naturalism can also be found in the work of James, who explores the complex relationship between mental facts and physical environments. Generally speaking, an appropriate explanation of the mind would likely not be incompatible with dualistim, given that it has to consider the involved relations in question and in context in this genetic and dynamic ongoing process. According to Johnson, pragmatism and Cartesianism are mutually exclusive; a position also held by Jerry Fodor. I will address this controversy in more detail in Chapter Two.

Topic Four: embodied view of meaning

Known as 'embodied meaning,' Johnson's view of meaning seems not only to be the object of the meaning, but also plays a foundational role: embodied meaning is 'grounded in, and shaped by, the body.'[68] Akin to the same position, Dewey regards perceptual acts, bodily movements, as well as thinking, reasoning, and communicating to be 'tracks' of thinking and cognition. Besides, James believes the sensory-motor experience constitutes the basis of abstract thinking. Thus complex mental events appeal to embodied meaning in order to be realized as directly and inseparably as possible.

Embodied meaning is an important part of 'cognitive semantics,' which is the object of second-generation cognitive science. Johnson proposes the theory of

[67] Cf. Dewey 1938, p. 19.
[68] Cf. Johnson 2006, p. 372.

'conceptual metaphor,'[69] or Concept Metaphor Theory (CMT), which is a cornerstone of cognitive linguistics.[70] This theory provides a bodily grounding of meaning and thought in which meaning, understanding, and reasoning are all extended from sensorimotor experience without assuming propositional attitudes. However, this approach may appear specialized, having yet failed to permeate mainstream linguistic theory more broadly. This theory will be seen later also in Chapter Two.

Topic Five: the role of feeling in thought

Johnson emphasizes feeling in delineating the essence of thought. Although feeling is intangible, it accompanies thought. Moreover, thought cannot be detached from feeling: having a feeling is not unlike taking something from the physical world and leaving something else in the world of fancy. Thought always follows experience, and in every experience is accompanied by feeling. Johnson borrows the ideas of James, such as logical relations are realized as feelings of directions in our thinking. Feeling always implies contents for thought that are empirically true. Johnson thus borrows James' metaphor of 'fringe' and 'halo' in describing the dispersive relation in felt tendencies and connections. These ideas are akin to the felt qualitative aspects of experience promoted by Dewey. That is to say, what is contained in perceptual experience is an 'integrating quality.' Such qualities in the feeling of thought are inexplicable and pervasive.

In short, feeling is not only a subjective experience, but also concerns the objective aspects of the actual situations translated from its bodily states. Although it is difficult to grasp such qualities as well as the felt characteristics of experience with neuro-computational or neuro-chemical models, they can still be perceived via sensorimotor, and even imaged. It seems that pragmatism and phenomenology overlap in the embodied approach of Johnson, and qualia and sense-data are difficult subjects for cognition research that are being challenged by the researchers of second-generation

[69] Cf. *Idem*, p. 373.
[70] Cf. Croft et al. 2004.

cognitive science.

Topic Six: Emotion and reason

The contradiction between emotion and reason appears evident. However, building on the ideas of James, Johnson insists that emotion plays an important part in the process of reasoning: Good reasons need positive emotions, and negative emotions create bad reasons. Although emotion is not likely to be the essential motivator of thoughts, bodily expressions, and actions, it is nonetheless a barometer of our mind. It reflects our awareness of our bodily states invoked with rational appeals. As a result, emotion seems a catalyst of cognitive conduct.

Topic Seven: consciousness as a functional process

Neither classical pragmatism nor second-generation cognitive science takes consciousness as a 'thing.' Instead, it is widely considered a functional process. From Johnson's perspective, Dewey's evolutionary point of view holds that consciousness is a special type of cognition that is generated by sentient organisms and adjusted via tensions within their experience in the face of specific problems. Accompanied by subjective feelings, conscious states are always invoked in the process of solving problems. Furthermore, through James's lens, self-consciousness renders the contents of different thoughts possible to recognize and renders the thinking process a continuum. For example, a subject often feels the 'warmth' and 'intimacy' of her own thought, and has a sense of unceasing personal existence. Therefore, the presence of an embodied-self guarantees both realistic and continuous perspective of cognition.

The above ideas are all developed by Johnson from the James's and Dewey's pragmatist views on the topic of cognition.

1.1.4 The interaction between cognitive science and pragmatism

One can see from the above discussions of the seven topics that Johnson values pragmatism as the most important philosophy for cognition science. In addition to these ideas, Johnson also introduces the proofs of relevant scientific experiments, especially those from neurobiology and cognitive linguistics. As concluded that when 'the mental' is regarded as intelligent phenomena, its complexity and intangibility need to be seen via multiple methods. Therefore, cognitive science requires enhancement on the level of technique, as well as a shift in methodology and epistemology. For Johnson, there is a close interrelationship between the new generation of cognitive science and the revival of the pragmatist tradition.

First of all, as an interdisciplinary field with a pluralistic empirical methodology, cognitive science can make up for some of the shortcomings of pragmatism, such as the lack of foundational knowledge and an overdue reliance on self-understanding. Although admittedly no method can claim to be exclusive and final, the support from experimental data in multiple fields is adequate for developing the knowledge in addition to a pragmatist view of both mental and physical cognition.

In addition, the principle of pragmatism provides a general philosophical framework in which the assumptions and results of cognitive science can be utilized and appreciated. Since cognitive science does not provide abstract knowledge for full comprehension, its methodology and assumptions need to be challenged indefinitely.

Furthermore, cognitive pragmatists can remind scientists to think about the value of their work—to concern the need and interests based on the real life, and do further research in a contiguous way. Johnson and Lakoff suggest:

> Pragmatism must be an 'empirically-responsible philosophy' informed in part by empirical results of the sciences of mind.[71]
>
> Part of the critical responsibility of pragmatist philosophy is to ask what various empirical

[71] Cf. Lakoff and Johnson 1999, pt. 1.

results *mean* for how we should understand and live our lives.[72]

Consequently, Johnson revisits the ideas of James and Dewey, and asserts that pragmatism can provide a philosophical basis for what he calls second-generation cognitive science. In addition to guiding cognition research in a more proper direction, pragmatism is also useful for explaining the theoretical predicament of first-generation cognitive science, and in seeing the complexity of mind as well as the rationality involved in human experience.

Beside those points of convergence between second-generation cognitive science and American pragmatism, Johnson further emphasizes the significance of *action*[73] for cognition research also in other works. He gives a definition of 'embodied cognition' that is also developed from his cognitive pragmatism. However, Johnson does not tell us exactly what the 'pragmatist turn' or 'pragmatic turn' is. Instead, from the unique point of view of a cognitive scientist, he raises questions for both scientists and philosophers to address.

Yet viewed in the broader context of discussions regarding the 'pragmatist tendency,' Johnson's explanation inevitably has its problems. He focuses on only Jamesian and Deweyan pragmatism, especially their psychology. However, those ideas might not turn out to be the most essential aspects of the concept of pragmatism, at least in its original sense, because pragmatism is a theory of truth, even in the Jamesian sense.[74] Further, Johnson fails to consider the thought of Peirce, the prominent pragmatist philosopher, without giving a reason. If it is simply a matter of ignorance on Johnson's part, then it is clear that he needs to improve his argument by bringing in Peirceian pragmatism in his forthcoming research. If, however, Johnson is omitting the ideas of Peirce intentionally, then it would appear that the benefits of pragmatism might not be as great as he claims. At the very least he needs to make some distinctions within the camp of pragmatism. But for now, I will depart from this topic in order to take a

[72] Cf. Johnson 2006, p. 376.
[73] Cf. Johnson and Rohrer 2007, p. 20.
[74] Cf. James Oct., 1904; Apr., 1905; Mar., 1907; Jan., 1908; Jul., 1908.

more detailed look at a theory about a so-called ‘pragmatic turn’ in the field of cognitive science. I will analyze the philosophical bearings of the theory, especially those involving explanations of ‘action.’

1.2 The ‘pragmatic turn’ in cognitive science

If Johnson provides us with some thoughts about the pragmatist tendency in cognitive science from the point of view of a philosopher, then it can be said that Engel et al. address the same phenomenon, only from the point of view of scientists. Engel et al. provide ample experimental evidence in support of the philosophical frame of cognitive science, including cognitive psychology, cognitive neuroscience, neurobiology and cognitive robotics. Some of these will be briefly analyzed in the following chapters and the underlying philosophical ideas will be examined for further discussion.

Similar to the points made by Mark Johnson and Tim Rohrer on the problem of cognition, Engel et al. realize the importance of action for understanding the process of cognition. More precisely, they believe that the notion of ‘practice’ is crucial for cognitive research. Thus they see an ongoing transition in the field from the theory of ‘representation’ to that of ‘action.’ In other words, the understanding of cognition is shifting from a ‘representation-oriented paradigm’ to an ‘action-oriented paradigm.’

1.2.1 From representation to action: cognitive science and the challenge it brings to the concept of representation

Unlike Johnson, Engel et al. do not use the ‘two generation’ characterization. Instead, they discover a transition from a ‘representational central framework’ to an ‘action-oriented paradigm.’ From their perspective, ‘an action-oriented paradigm is not

only conceptually viable, but already supported by much experimental evidence.' They claim:

> Cognition should not be understood as providing models of the world, but as subserving action and being grounded in sensorimotor coupling. Accordingly, cognitive processes and their underlying neural activity patterns should be studied primarily with respect to their role in action generation.[75]

Cognitive science in its early period provided a functional explanation of the mind in which cognition is mainly regarded as computation over mental representations that are operated through the formal construction of syntax and grammars. But it seems that such a picture of the mental world went against some basic features of cognition. More specifically, it appears that the mind does not intend to focus on the whole world, as such a wide range of attention is not necessary for any organism. For example, the world of a dog that is similar to that of a cat, and both are much simpler than that of a human, but we cannot say their cognition is less sophisticated—their lives are perhaps better than ours. Therefore a method that constructs the understanding of the internal world in the first place and then somehow 'connects' it to the external world is not likely to reflect the essence of cognition. In fact, according to cognitive pragmatists, such an approach proves more often than not misleading. Following a shift of perspective, however, one can see that cognitive processes actually overlap with action. Thus the process of cognition has 'enactive' features, which are exercises of skillful know-how in situated and embodied action. Therefore, the idea of enaction and embodiment can be used to explain in an indivisible manner the interaction between a cognitive agent and their world.

It can be said that the transition from representation to action is not a process of substituting the former with the latter, but rather an optimization of the method of explaining cognition. Throughout the transition, our focus shifts from building abstract

[75] Cf. Engel et al. 2013, p. 202.

theory to resolving more concrete problems, and thus our understanding of cognition becomes both more specialized and more accurate, and its meaning and function are progressively clearer.

It seems that both the idea of transition taken from Engel et al. and that of Johnson share the same perspective in their analysis of the nature of cognition. Both emphasize the importance of solving the specific problem in the specific context of the ongoing process of cognition. In other words, cognition is not merely the structure of mental contents, but more importantly, it is the need to realize actions that directly sustain life. Different from the merely 'cognitive mind,' the active and embodied mind is 'problem-oriented.'

Engel et al. introduce three concepts in further clarification of the idea of action-oriented cognition: namely, enaction, action-oriented representation and motor action. In discussing the notion of enaction of Varela et al., Engel et al. suggest that cognition is defined as 'embodied action.' They explain:

> Cognition is not detached contemplation of the world, but a set of processes that determine possible actions…cognitive processes construct the world by bringing forth action-relevant structures in the environmental niche.[76]

In short, cognition is understood as a structure generated by action. Such a structure can be as broad as an entire world of many different living creatures and situations. Influenced by phenomenology, existentialism and even certain varieties of mysticism (Buddhism in particular), Varela et al. emphasize both the bodily sensation phenomena in a comprehensible real world.[77] The notion of enaction can underlie the intertwined relation between cognition and action. Separate from the operations of mental representation, enactive cognitive operations do not acquire pre-existing features of the phenomenon nor the actual representation of the object. Instead, cognition is an action that is able to directly realize the meaningful content of thought

[76] Cf. Engel et al. 2013, p. 202.
[77] Cf. Varela et al. 1993.

and consciously generate the possible action to be more and more skillful.

Engel et al. also explain the concept of 'action-oriented representation' first used by Clark.[78] Such an action-oriented point of view does not reject the existence of representation; it indeed develops a way of realizing both meaning of representation and action in a more direct approach. The idea can be summarized as follows:

> Cognition does not build upon universal, context-invariant models of the world, but is subject to constraints of the local spatiotemporal environment, which need to be dealt with in a highly context-dependent manner.[79]

In fact, the theory of extended mind advocated by David Chalmers and Andy Clark[80] enjoys wide influence in the field of contemporary cognitive science. In their theory, the boundary of mind and thought is pushed outwards into the cognitive surrounding and environment such that the conception of the mind is no longer restricted to that of a passive 'inner theater.' Rather, an active externalism based on the active role of the environment in driving cognitive process in order to form the core of cognition. In other words, it is not mental representation but action-oriented representation that focuses on problematic contexts in order to assist the cognitive agent in overcoming a problem. In effect, cognition is not in the position of providing a readymade, complete and invariable picture of the world. Instead, it is more like a deliberate and purposeful reactive system made vis-à-vis actual, specific situations and concrete contexts. In this sense, the guidance and description of internal states and representations are indispensable for every possible action.

The notion of 'motor action' by J. Kevin O'Regan and Alva Noë[81] is another important topic covered by Engel et al. The idea behind the theory is that action is not only a product of cognitive operation, but also an intrinsic part of the cognitive process as a whole. It is action that makes the transition from 'sensorimotor contingency'

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[78] Cf. Clark 1998.
[79] Cf. Engel et al. 2013, p. 202.
[80] Cf. Clark and Chalmers 1998.
[81] Cf. O'Regan and Noë 2001.

possible. That is to say, an action always has a specific purpose. As a cognitive feature, purpose is contained in every sensory experience. Therefore, the brain is at the same time both a maker of action and possessor of knowledge. In short, cognition is by no means passive, but rather comes from and directly influences action.

In general, all these theories of enaction, action-oriented representation and motor action, are varieties of the same action-oriented trend in the field of contemporary cognitive science. On the one hand, these ideas expand into the realm of the mind, and on the other they challenge the classic theories of mental representation such as representationalism and cognitivism. These action-oriented cognitions also lend more importance to neural activity patterns. In this new paradigm, an organism has the capacity of structuring action-related contexts in order to finish certain tasks. Compared with representation, action has a closer relation with situations, in which and meaningful contents can be directly and effectively realized by possible actions. Engel et al. assert:

> Cognition is fundamentally action-bound, subserving the planning, selection, anticipation, and performance of actions. Thus, cognition and action are not only closely interrelated—cognition seems fundamentally grounded in action.[82]

From the above, it is apparent that the process of cognition can be seen either as a specific kind of action or as the most crucial part of an action. Ideas such as these are typical of the pragmatist view of cognition. From a pragmatist point of view, there is no essential difference between cognition and action. Cognition is guided by action and its objective is the realization of the action. It appears that in the movement of cognitive science, the study of cognitive states and processes has changed from a period in which the external world is internalized in the mind by some mental representation and the rule of computation, to a new period in which cognition is seen as a method and a process of realizing the value of thought and expressing effective actions. That is to say,

[82] Cf. Engel et al. 2013, p. 206.

only cognition realizes its own meaning.

In contrast to Johnson, Engel et al. do not deny the thinking capacity of the mind. They do not relinquish the concepts of representation and 'intentionality.' In their explanation, it is indeed 'intentional action' that is emphasized as a controllable relationship the direct effect of which can be recognized as a sign of intelligence. They say:

> To denote the action-relatedness of internal states and to emphasize that objects and events of the current situation are specified with respect to the cognitive agent, concepts such as 'deictic representation,' 'deictic codes,' 'indexical representation,' 'control-oriented representation,' or 'action-oriented representation.'[83]

Although action is the core concept used to mark the pragmatic turn in the domain of cognitive science, it seems to Engel et al. that even in such action-oriented theories, the role of representation remains indispensable. This view is very different from that of Johnson. That is to say, even if RTM is rejected in the new pragmatic paradigm of cognition, the concept of representation is nonetheless compatible with the action.

In fact, many working scientists in the field are unaware of the distinction between similar concepts, such as the very conceptual difference between consciousness and intentionality. For them, representation can be understood as playing a functional role in cognition. Similar ideas also appear in Dewey's work.[84] To be a functional element, representation must be free of certain internal contradictions. Since representation occurs in the form of symbols, it is unnecessary and even counterproductive to conceive of representation as having a one-to-one correspondence with the external world. Indeed, Engel et al. develop the connections between intentionality and action in a way that would never be accepted by Johnson's pragmatist approach.

Unlike behavior and movement, the notion of action intrinsically involves the purposes, intentions, assumptions and presence of the cognitive agents. As a result,

[83] Cf. Engel et al. 2013, p. 206.
[84] Cf. Dewey 1905.

what is involved in cognition is said to be 'intentional action.'[85] This type of action is driven by goals, involves volitional control, requires planning and decision, predicts an outcome, and associates with the sense of agency.

As seen by Engel et al., the notion of action is understood as involving intentional properties, and the fact is that the notion of intentionality and that of consciousness are perhaps not rigorously distinguished in the scientific community. Scientists assume that intentional action also involves empirical experience. These considerations probably draw influence from John Searle,[86] who explains the meaning of intentionality in a broader sense. In fact, Searle's definition of intentionality and that of Fodor[87] are very different.

According to Engel et al., intentional actions are generated by basic sensorimotor behaviors, in which sensorimotor coordinations and contingencies give action a more complex structure. Actions contain intentional content, but this content is not a 'picture' composed of representations. Instead, the meaning of action can be realized, known as 'embodied means.' Such meanings are not preexistent because they are the real result of the action. Therefore, it can be said that the idea of mental representation is not discarded by Engel et al. because possible actions are the externalizations and realizations of meaningful and purposeful thoughts. Thus it is proper to say that action is a strategy that can simplify the task of cognition.

On the basic understanding of intentional action, Engel et al., further introduce the notion of 'directive'[88] in order to redefine the notion of representation for overcoming some shortcomings of cognitivism. This concept is superior due to its property of 'action-relatedness.' Differing from intentional properties, directive is physical. However, this physical property can play the role of disposition: one that is similar to the intentionality of mind, explained thus:

> The action-related role of large-scale dynamic interaction patterns that emerge in a cognitive

[85] Cf. Engel et al. 2013, p. 203.
[86] Cf. Searle 1983.
[87] Cf. Fodor 2008.
[88] Cf. Engel 2010.

> system…directives can be defined as dispositions for action embodied in dynamic activity patterns. On hand in procedural memory as dispositions for meaningful actions, directives are immediately related to action selection. Activating a directive is assumed to tightly control planning and execution of the respective action…directives are not encoded only by activity in movement-related brain circuits, but extend across sensory and memory structures, as well.[89]

The notion of directive overcomes the indirect connection between representations. As a concept, directive is superior to the action-oriented paradigm, because it describes so well the dynamic interaction of a holistic cognitive system. At the same time, bodily dynamics also satisfies the requirements on the level of biophysical and physiological properties. That is to say, although directive is physically derived, its dynamic tendency is compatible with the directness of mind. As a special kind of representation, directive can explain the entire dynamic disposition in the mind that is capable of extendedly exposing ideas. Furthermore, directive is not equivalent to the internal state of the brain. Instead, it 'refers to states of the cognitive system in its entirety, which includes the body and part of the environmental niche.' Therefore, directive is not the state 'in the head,' it 'refers to the dynamics of the embodied and embedded mind.'[90] Besides that, Engel et al. explain the cognition of object concepts from a pragmatist point of view. They say:

> Knowing what an object is does not mean to possess internal descriptions of this object, but to master sets of sensorimotor skills and possible actions that can be chosen to explore or utilize the object … Objects are structured by directives in the sense that an object is defined by the set of possible actions that can be performed on it.[91]

Distinct from the general understanding of the object of cognition, a cognitive

[89] Cf. Engel et al. 2013, p. 206.
[90] Cf. *Idem*, pp. 206-207.
[91] Cf. *Idem*, p. 206.

object needs to be attained by the possible action and must be continuously inactivated during the cognitive process. This idea of object-use is similar to that of *language game* use, taken from the later work of Ludwig Wittgenstein.

Accordingly, in the pragmatist view of Engel et al. representation and action are not mutually exclusive concepts. The intentional content of an action is contained in the understanding and realization of the cognitive action. That is to say, 'directive' is an active, dynamic, and self-contained form of cognition, neither mere representation nor mere action. Besides, the significance of cognition lies not merely in representing or acting, but more importantly in skillful and effective guidance.

1.2.2 Characterization of the pragmatic turn

Engel et al. remain a bit reserved in their use of terminologies. They use the words '*pragmatic* turn' instead of '*pragmatist* turn,' in designating the action-oriented paradigm to describe the movement in the domain of cognitive science. It implies that their thought is more geared towards the broader and developed understanding of pragmatism, instead of pragmatism in its original philosophical sense. It seems to Engel et al. that the notion of the 'pragmatic' has its bearings on actions and practices, which has its source in the pragmatist theories of Dewey and Mead. In fact, Engel et al. neither abandon nor completely agree with the classical cognitive frameworks. For them, action is cognition, which is a form of practice. The concept of cognition in the pragmatic turn is summarized by Engel et al. as following:

I. Cognition is understood as the capacity of generating structure by action;

II. The cognition agent is immersed in his/her task domain;

III. System states acquire meaning by virtue of their role in the context of action;

IV. The functioning of cognitive systems is thought to be inseparable from embodiment;

V. A holistic view of the architecture of cognitive systems prevails, which emphasizes the

dynamic nature and context-sensitivity of processing;

VI. Models of cognition take into account the embedded and 'extended' nature of cognitive systems.[92]

This above definition is represented in a very similar way to the 'embodied cognition' promulgated by Johnson and Rohrer.

I. Embodied cognition is the result of the evolutionary processes of variation, change, and selection.

II. Embodied cognition is situated within a dynamic ongoing organism-environment relationship.

III. Embodied cognition is problem-centered, and it operates relative to the needs, interests, and values of organisms.

IV. Embodied cognition is not concerned with finding some allegedly perfect solution to a problem, but one that works well enough relative to the current situation.

V. Embodied cognition is often social and carried out cooperatively by more than one individual organism.[93]

Accordingly, for Engel et al. cognition is capable of generating meaning through action regarding the role of the agent and its content of its action: cognition is task-oriented, the cognitive system is functioning and condensed with embodied meaning, the cognitive system concerns a holistic view of analyzing 'dynamic nature' and 'context-sensitivity,' and the cognitive model invokes an 'embedded' and 'extended' nature. For Johnson and Rohrer, embodied cognition is the result of evolution, and 'is situated within a dynamic ongoing organism-environment relationship.

Both Johnson and Engel et al. explore the relation between pragmatism and the directions that cognition research will take in the future. However, ideas of Johnson, strangely enough, do not appear in the papers referenced by Engel et al. This is probably

[92] Cf. Engel et al. 2013, p. 206.
[93] Cf. Johnson and Rohrer 2007, 19.

because Johnson's project places greater emphasis on the capacity of body and environment in restructuring and constraining 'bodily logic' and 'human understanding,' while the work of Engel et al. focuses more on topics such as 'intentional action' and 'dynamic directive,' according to which 'cognition first develops as the capacity to generate structure by overt action' and secondly, performs such as 'motor imagery, [which] might then establish the capacity for internal simulation of actions and action plans.'[94]

Therefore, in explaining cognition, the functional aspect of representation is regarded as the realization of meaningful content produced by successful action. Furthermore, for Engel et al. various kinds of action are understood as skillful and enactive processes with cognitive characteristics, such as 'embodied action,' 'motor actions,' 'own actions,' 'overt actions,' and 'meaningful actions,' etc. The idea is that the purposes and decisions of an agent—including the concepts of self and its dispositional object—can all be added to the scientist experiments in a workable way. Problems, however, arise in that instead of a deep reflection on the meaning of cognition, the single purpose of Engel et al. is no more than the verification of the cognitive process, which is probably why they neglected to address Johnson's ideas in their paper. Though both of them define cognition as action, they differ in approach. More specifically, the purpose of Engel et al. is to discover, via scientific experimentation, the action-relatedness and action-modulatedness in the realization of cognitive functioning models by understanding the meaningful contents of actions that may explain some crucial factors in the formation of cognizing process. It is in these aspects that the idea of pragmatism is instrumental for devising methods of conducting controlled experiments. Therefore it can be said that due to experimental operability as well as reflection on the complexity of human reasoning, the ideas of Engel et al. raise some key philosophical questions for cognitive scientists with respect to pragmatism.

[94] Cf. Engel et al. 2013, p. 203.

1.2.3 The impact of the pragmatic turn of cognition research

Besides suggesting a new framework for the future research on cognition, the pragmatic turn also effects on its philosophy, and it alters our understanding of the brain's functions in the domain of neuroscience. The idea is described thus:

> The conceptual premises of the pragmatic turn are likely to enforce a redefinition of basic neuroscientific explananda. What neuroscience, then, has to explain is not how brains act as world-mirroring devices, but how they can serve as 'vehicles of world-making' that support, based on individual learning history, the construction of the experienced world and the guidance of action.[95]

It seems therefore that in this framework, the explanation of 'cognition' has been turned into the explanation of 'action.' Distinguished from behaviorism, this shift towards action reflects a turn towards the dynamics of the cognitive system, which is now recognized as the core question in the field. In fact, this idea is being further developed in extended mind approaches such as theories of embodied, embedded, and enactive cognition, which explore how the process of thinking is realized and in what sense explanations of mental process are viable.

From a pragmatist point of view, the mind is not a mere world-mirroring device, but a vehicle of world-making. This means that experience, in addition to providing a reflection of the external world, also produces possible actions to change that external world. Thus, Engel et al. list the questions according to their observations of the action-oriented cognitive system, and they pose ten questions.[96] I will not list them here, but it can be found that in addition to action, the concept of 'habit' is also an important one for Engel et al. especially in the study of the pragmatist view of cognition. Habit provides another link that is to be found in pragmatism. Indeed, the theory of habit is

[95] Cf. Engel et al. 2013, p. 207.
[96] Cf. *Idem*, p. 207.

projected in our proposal that can be used to develop the theory of action.

From a singularly philosophical point of view, it is more difficult for us to assess the results of scientists' experiments than to understand the theoretical ideas that dictate their experiments. Although always complicated and intertwined, a theory is nonetheless based on clear and strict concepts. This principle is exactly what was introduced by Peirce in the idea of pragmatism.[97] That is to say, even in an experiment in which the result is straightforward, it is the design that renders the steps determinate. In this sense, our interpretation of the experiment may be far from unequivocal, as long as the experiment is described in a narrative form. It is indeed difficult to say if cognitive science is capable of acting as the science of cognition. Although the results of the scientific experiments would be acceptable by academic standards, a barrier would still exist between scientists and philosophers.

Following the insights of a naive pragmatist, the purpose of an inquiry into cognitive science may be simple: to understand the reason for and purpose of doing cognitive research, and to understand the scientific experiment as fully as possible so that we may grasp the most essential ideas and understand the most basic difficulties involved in the experiment. By reflecting upon the meaning of human rationality as well as the factors that influence reasoning, the criteria of truth are what pragmatism attempts to give. It is a model of thinking that is similar to the current cognitive model. Such modes are built upon connections between concepts that appear on the level of experience. In other words, if a cognitive scientist can perform their experiments under the guidance of pragmatism, such results would be explicable in our frames, because they not only satisfy empirical fact but also take into account the complexity of rational thought. On the contrary, through the scientific reading of a philosophical idea such as pragmatism, philosophical reflection on scientific experiments can reveal the value of pragmatism in the field of cognitive science. As a result, a pragmatist turn is hopeful. This work is developed by Johnson and Engel et al. However, in their work some differences can be found, and these will be explored in the following sections.

[97] Cf. Peirce 1878; Buchler (ed.) 1940, pp. 23-41.

1.3 The similarities and differences between the theories of Mark Johnson and Andreas K. Engel et al.

First of all, judging by both the theories of Johnson and Engel et al. we can see that they share the same enactive perspective in the explanation of cognitive states and processes. Both view such states as action, and such processes as growing potentiality. In other words, cognition is not a single representational state, and its content is indeed realizable on multiple levels. Besides, cognitive process is dynamic. Therefore, the emergence and development of cognitive activity are closely related in a complex way with other individuals in their inhabited environment. It is proper to say that the evolution of cognition is driven by the necessity of survival and problem solving in particular contexts. In this sense, cognitive activity is both active and creative.

Second of all, both Johnson and Engel et al. discovered the importance of the notion of 'action' in understanding the nature of cognition. In addition, both of them support the transition from a perspective of 'representation' to one of 'action.' For them, the action-oriented cognition is in many aspects better than the classic theory of mental representation given that the mind is capable of guiding actions, and cognition is a dynamic process the continuity of which is more essential than its completeness and priority.

Thirdly, both Johnson and Engel et al. underline the role of sensory experience in the emergence and developing process of cognition. In order to explain the multi-level cognitive structure and organism-environment interactions, both of them analyze the complexity of designing cognition research. Furthermore, Dewey's ideas appear in the theories of both. For instance, Johnson suggests the principle of continuity according to which bodily and mental activities are performed as a continuum. This implies that cognition is an unbroken process, and rationality is an emergent 'gift.'

Finally, the idea of pragmatism in the ideas of both cognitive pragmatisms come

from classical pragmatism while the impact of its modern variants on cognitive science (such as neopragmatism and neoclassical pragmatism) is ignored by both. It implies that this pragmatic turn in cognitive science is highly relevant to the old method performed by the philosophers of mind and epistemology. Since Johnson and Engel et al. come from different academic backgrounds, there are also many differences between their theories.

To begin with, Johnson and Engel et al. treat the notion of 'representation' differently. For instance, Johnson denies the existence of the representational state of mind, known as 'mental representation,' while Engel et al. reform the concept by adding to it Andy Clark's notion of action-oriented representation. From Clark's ideas they derive a new concept, 'dynamic directive,' which they use to explain the relation between representation/cognition and action. By contrast, while Johnson harshly criticizes early cognitive science, he does not propose any reform of the classic theory in any positive sense. Instead, he promotes his CMT from the special domain of cognitive linguistics. The criticism of Engel et al. against the classic theory is thus not as harsh as that of Johnson, and their pragmatic theory is not only a reaction against the first-generation cognitive science, but rather a tentative move towards exploring a broader space for any viable future development in the field.

Secondly, there are differences between Johnson and Engel et al. in the understanding of notions such as 'intentionality' and 'consciousness.' Moreover, the notion of action is also richer in the understandings of Engel et al. than that of Johnson. Engel et al. do not discard the notion of intentionality; in fact, they emphasize the intentional content of as well as the disposition in action. For them, action is properly understood as an 'intentional action.' On the contrary, Johnson rarely mentions intentionality; he regards cognitive states as conscious states, which are directly connected by such notions as sensory and bodily experience within bodily dimensions. Scientists generally do not delve deeply into conceptual analysis in their notions of cognition. Therefore, many philosophical ideas such as naturalism, dualism and reductionism are not closely examined in Engel et al. Also, topics such as emotion, feeling, reason and interest—which are essential to Johnson's theory—are missing in

their explanation of cognition.

In contract to the direction taken by Engel et al. with regard to the verification of cognitive process by entirely scientific methods based on natural reductionism, they have to face the methodological choice between workability and conceivability since predictions may not be seen immediately. By contrast, Johnson describes mind and cognition through a less radical naturalistic method with various perspectives on forming meaningful and reasonable explanations.

Fourth, the difference between Johnson and Engel et al. is also reflected in their different understandings of the notion of 'body.' Johnson underscores the central role of the body in the cognitive process, which is realized by its embodied meaning. To the contrary, although Engel et al. also analyze what they called 'bodily state,' they do not further explore the function of such a state in the cognitive process. And unlike Johnson, who insists on the complexity involved in the process of human cognition and tries to explain those mental contents that are directly accessible, Engel et al. do not place great weight on the uniqueness of individual experience. Instead, they adopt a view of cognition that remains rather balanced between subjective and objective positions in order to make cognition both meaningful as well as successfully realized.

Finally, Johnson and Engel et al. do not concentrate on the same theory of pragmatism. The former merely introduces the ideas of James and Dewey, whereas the latter mentions their names without introducing the ideas of Dewey and Mead. Instead, Engel et al. lay greater importance on the theories of action of some 'cognitive pragmatists' such as Varela et al. Clark, Noë and O'Regan. Those extended perspectives of pragmatism seem indirectly connected to the pragmatist tradition.

According to the analyses of both Johnson and Engel et al., that there is a rising tide of pragmatism in cognitive science is clear. Some call it a 'pragmatic turn,' while others take it to be a 'pragmatist turn' in a more rigid sense. The fact is that such a turn is not only viable with respect to conceptual understanding, but also supported by scientific proofs. Although 'cognitive pragmatism' is thought to be a subsequent branch of the original pragmatism, it is in fact quite a different development from the original one. It seems that neither Johnson nor Engel et al. have given a complete introduction

to pragmatist thought as such. Instead, they only address particular aspects of pragmatist ideas. Therefore, from a philosophical point of view, in order to examine a pragmatist movement in cognitive science, it is more relevant for us to give an analysis of Johnson's cognitive pragmatism and point out some of its deficiencies.

1.4 A criticism of Mark Johnson's pragmatist approach

There are several problems in Johnson's representation of pragmatism. The first is his overt emphasis on only the assets of pragmatism for second-generation cognitive science. The second is that the main source of Johnson's understanding comes from only two of the early pragmatists, namely James and Dewey, and this is too narrow a focus. Furthermore, not only does Johnson fail to discuss pragmatists other than James and Dewey, he also neglects many subtle differences between them. Johnson nevertheless overlooked some aspects of their key ideas.

For instance, in his criticism of dualism and reductionism, Johnson does not mention the 'pragmatic method' of James,[98] nor does he allude to the 'realism' of pragmatism or 'instrumentalism' of Dewey.[99]

Secondly, for pragmatists, there is not foundational knowledge, Johnson thus also takes the method of inquiry as pluralistic. However, what Johnson does not mention is the pragmatist 'epistemology,' which consists of the pragmatist aspect strongly criticized by Fodor as 'concept pragmatism.'[100] Therefore it is still unclear to what degree pragmatism is helpful for today's cognitive science. Of course, this does not mean that a comparison between philosophical thoughts is outside the domain of science. The key goal, however, is to find the general problems that keeps haunting both scientists and philosophers, and which are also the questions that have haunted Peirce from the very beginning. One such question arises in Peirce's thought as the

[98] Cf. James Dec.8, 1904.
[99] Cf. Dewey Jun. 8, 1905.
[100] Cf. Fodor 2004; 2008.

contradiction between the 'scientific man' and 'practical man,' with cognition divided into rational cognition and rational purpose.

Finally, Johnson's definition of embodied meaning does not involve the truth theory of pragmatism. The tension between *truth* and *value* is one of the hard questions of pragmatism; another one is between *rationality* and *reality*. Pragmatism defines meaning in order to give rise to the truth; it does, however, take a loose stand on the nature of meaning itself. Meaning as understood by Johnson involves many subjective experiences and psychological subtleties. In this sense, Johnson sees reality in a way similar to the phenomenologists. This particular position raises the question about the possibly interesting relationship between pragmatism and phenomenology. Johnson characterizes his thinking thus:

> My work…has focused primarily on the bodily sources of meaning, imagination, and reasoning. I drew from phenomenology, linguistics, and the newly emerging cognitive sciences to explain how aspects of our bodily experience give rise to our conceptualization and reasoning … It was an important step to probe below concepts, propositions, and sentences into the sensorimotor processes by which we understand our world, but what is now needed is a far deeper exploration into the qualities, feelings, emotions, and bodily processes that make meaning possible.[101]

It can be seen from above that what Johnson has in mind is neither cognitive science nor pragmatism per se, but an aesthetic theory of meaning based on what he calls 'bodily understanding' and 'human meaning-making.' Such a theory has cognitive linguistics at its core, which, as its name suggests, tackles questions concerning psychological explanation during the process of cognition. It thus seems that there is an important shift in Johnson's views from phenomenology to pragmatism, while cognitive science seems a complementary study of his linguistic approach.

Johnson's cognitive pragmatism is a combination of the phenomenological theory

[101] Cf. Johnson 2007.

of experience and the pragmatist theory of cognition. But in spite of this, there exist some deficiencies in Johnson's interpretation of pragmatism.

Johnson's insufficiently narrow scope (narrow in that he refers almost exclutively to Dewey) is indeed not a rare phenomenon in contemporary embodied cognitive science. The idea of 'radical embodied cognitive science,'[102] for instance, also narrowly focuses on James and Dewey. It seems therefore that what is trending is not pragmatism per se, but a special version of pragmatism, namely the version of 'James-Dewey pragmatism' in which not only the idea of pragmatism is made synonymous with the ideas of James and Dewey, whose thoughts are furthermore regarded as indistinguishable. In addition, among Johnson, Chemero and Engel et al., not one has even mentioned Peirce, the philosopher who laid the foundation for pragmatism, and whose approach is quite different still from those of James and Dewey.

Moreover, Johnson's interpretation of James and Dewey is relatively loose. In fact, most of the ideas discussed in the field of cognitive science, such as embodied cognition, enactive cognition, extended cognition, embedded cognition, and situated cognition etc. more or less concern the pragmatist view on psychology and sociology. It seems that the role of action for cognition is underlined by all cognitive pragmatists. However, for pragmatists, cognitive processes are not essentially action-oriented, but they are necessarily considered as such. More precisely, it may be that what the 'true nature' of cognition is not an essential issue of pragmatism—instead, the pragmatist is concerned with the question of truth itself. Therefore, Johnson perhaps overlooked the epistemological perspective of pragmatism.

Finally, the relation between pragmatism and cognitive science might not, as many have expected, be a direct one. Of course, pragmatist ideas are helpful in removing some of the improper questions involved in the explanations of cognitive phenomena and process, but they cannot definitively solve the problems therein.

Hence, with pragmatism, Johnson marks the end of first-generation cognitive science as the hallmark of RTM, as well as the beginning of its second-generation,

[102] Cf. Chemero 2009.

supported by ETM. But these two theories, as cognitive science and pragmatism, more than a century apart perhaps address completely different questions. For example, the pragmatist's evolutionary point of view may be outside of the scope of genetic science. Unlike pragmatism, cognitive science is more closely related to the recent developments mainly in neuroscience; Johnson even promotes neuropragmatism.[103] Although James and Dewey have provided biological and psychological explanations of the mind (which is why both are regarded by Johnson as the cognitive scientists of that time), considering that these ideas span such different spaces and times, it would be dangerous to consider such ideas the same, however similar they may be.

1.5 Summary

Second-generation cognitive science, as conceived by Johnson, and the pragmatic turn, as suggested by Engel et al., have a common shortcoming: namely, that they understand pragmatism in an oversimplified and overgeneralized way. Even after cognitive science entered its second generation, the essence of pragmatism as introduced by cognitive scientists and cognitive pragmatists proved seemingly insufficient. And their critiques of RTM or cognitivism, typically known as the representational and computational theories of mind, remain debatable.

In my view, the theoretical benefits of pragmatism have a great degree of potential. The support it gives to 'action theory' may also be helpful for RTM. This is indeed the question we should ask. Pragmatism concerns both methodology and epistemology. It can help us to paint a holistic 'picture' of the mental world, *and* to find a potential 'passage' into the mental universe. In both these ways, pragmatism provides rich and meaningful grounds and a reliable entrance to improving the domain of cognitive science in a general sense.

Consequently, Johnson and Engel et al. share many parts of their views, and both

[103] Cf. Johnson 2014.

criticize the RTM of Jerry Fodor. The importance of the Fodorian approach is widely recognized in the domain. Indeed, this is a classical theory which may not be easily disregarded by cognitive pragmatists. It is therefore necessary for us to see how Fodor's objection to pragmatism goes. Through such an objection, we can inquire not only into what role pragmatism plays in cognitive science, but also about the extent to which pragmatism functions in the debate between the divergences of cognitive science.

It seems that pragmatism, as a traditional philosophical school, is undergoing a revival. In fact, this rediscovery of a philosophical tradition is more than mere historical revisionism intended to reinforce the new ideas of contemporary cognitive science with old ideas. Pragmatism has been projected as a significant turn: on the one hand for overcoming the unresolved difficulties of knowing the mind, on the other hand, to open a new vista to guide the advanced empirical research towards more suitable directions of cognition. Nevertheless, it is clear that the proof is not robust enough.

In the next chapter I will introduce a particular debate between Mark Johnson and Jerry Fodor in which they take very different points of view on the rising trend of pragmatism in cognitive science.

Chapter Two

A Controversial Trend: Cognitive Pragmatism vs. Anti-pragmatist Cognitivism——'Johnson & Fodor Debate'

After outlining the concepts of 'second-generation cognitive science' and the 'pragmatic turn,' pragmatism as well as an influential philosophical view inspires the advancement of new scientific experiments in the field of cognition research. In addition to the works of Mark Johnson and Andreas K. Engel et al. my research view is narrowly concentrated on philosophical questions pertaining to cognitive science and pragmatism, instead of focusing on the corresponding physiological or extended meaningful contexts of the inhabited environment of the cognitive agent. This intent is the main target of cognitive pragmatism.

According to cognitive pragmatism, cognitive science is undergoing a shift from a 'representation-oriented framework' to an 'action-oriented framework.' In this sense, one could say that our model is no longer still photography, but video. In the former view of cognition, the mind is comparable to a camera or a printer: The world is represented with pictorial or linguistic media, and there are certain segments or elements that need to be correlated in order to form stories. However, in the latter view of cognition, the mind is akin to a camcorder: The world is represented in the form of movies. What these movies present is a vivid world, whether fictional or real, but nevertheless represented in the same way as the real stories of the world. It seems that after this pragmatist movement, cognition is not only a reflection of the world, but it also includes various possibilities to change the world. Based on these two different worldviews, promoted by RTM and ETM respectively, pragmatism is involved, but differently regarded.

Both Johnson and Engel et al. advocate pragmatism on the one hand and critique

the classical ideas of cognitive science on the other—especially representationalism and cognitivism—and Jerry Fodor is the primary and obvious target of such critiques. They are skeptical of notions such as mental/inner representations, and insist that perceptual experience and sensorimotor experience play important roles in the process of cognition. Indeed, Johnson and Engel et al. perceive the philosophical view of representation in different ways. Johnson takes a very strong stance in rejecting the theory of representation, whereas Engel et al. combine the ideas of representation and action in order to introduce a new concept known as 'directive.'[104] In order to reveal the contraction between the representation-oriented and action-oriented views of cognition, in this chapter I will focus on the different ideas of Mark Johnson and Jerry Fodor. I investigate whether these different ideas are underlying incompatible contradictions between the embodied and representational theories of mind.

As one of the principal thinkers in cognitive science, Fodor remains squarely in the first-generation camp. He promotes the conception of mental representations, while completely rejecting the methodology of pragmatism. According to Fodor, 'concept pragmatism' is one of the most regrettable ideas in recent philosophical history. Thus, for Fodor pragmatism is not only a pathogen responsible for giving cognitive science a 'bad cold,'[105] but also a 'dead parrot'[106] that needs to be buried. By contrast, other theorists regard pragmatism as a cure for the ills of cognitive science. In order to properly distinguish between the 'pathogen' and the 'cure,' the theories need to be examined in more detail.

I will analyze both the theories of Johnson and Fodor and their influences on the growing trends in cognitive science and in due course attempt to discern the differences between the 'earlier' and 'later' influences of pragmatism on cognitive science. This trend most likely constitutes a controversial one in the sense that the problem lies in understanding pragmatism from different perspectives. It should be noted beforehand, however, that a 'Johnson-Fodor dialogue' does not actually take place, and this is

[104] Cf. Engel et al. 2010.
[105] Cf. Fodor 2008, p. 11.
[106] Cf. Fodor 2004, p. 32.

mainly due to a lack of reply on the part of Fodor to Johnson's harsh critique. Therefore, what is at stake here is not the purely theoretical question of the definability of ideas, such as the differentiated ideas between Johnson and Fodor, or the similarity between Johnson and Engel et al. Instead, I try to understand those differences and similarities in order to understand the content of mind in any possible way. This is the core of cognitive science from my perspective, while the difficulty is how to realize this way in reliable forms and then recognize the essential content of the mind. Hence, I will not broach the problem of other minds, even though I acknowledge that it is indeed difficult to know the essential content of different minds even when they are considering the same thing.

In this debate let us call the position advocated by Johnson 'cognitive pragmatism,' while that of Fodor 'anti-pragmatist cognitivism.' Thus, the opposition between them is mainly reflected in their attitudes towards concepts such as 'action' and 'mental representation,' while 'pragmatism' is the key.

First of all, I will begin by introducing these ideas. After gleaning a further understanding of the debate, I will provide further detailed analyses of the underlying reasons for the debate in order to lend deeper insight into the relation between pragmatism and cognitive science.

2.1 Johnson's embodied theory of mind—the praise of pragmatism and the criticism of the representational theory of mind

Mark Johnson is perhaps the first philosopher to propose making a distinction within the development of cognitive science—with his remarkable pragmatist point of view on cognition. All of Johnson's most recent views[107] can be traced to his previous work with George Lakoff.[108] As a result, Johnson's cognitive pragmatism draws significant inspiration from his main research domain known as cognitive linguistics. However, in his analysis of the rising trend of cognitive pragmatism, Johnson focuses

[107] Cf. Johnson 2006; 2007; 2014.
[108] Cf. Lakoff and Johnson 1999.

only on the pragmatism of James and Dewey. Therefore, I follow this classical approach of American pragmatism in order to understand his definition of cognitive pragmatism.

In addition to pragmatism, phenomenology has influenced Johnson as well. According to him, phenomenology lends explanation to human experience, while pragmatism is able to provide an understanding with multiple critical dimensions. His viewpoint on cognition is poised to see the nature of cognition in its robust 'enactive-ability' as well as its complexity and transferability. In such a way, it is embodied meaning that will be recognized in dynamitic forms. This trend can be found in developments ranging from AI to robotics. However, this complex relation of cognition is rendered even more multifaceted, because it applies to humanity. This complexity of the mind is irreducible, but it can be further probed for a rationale. Johnson understands this rationale through the concept of 'body logic,' in which the body is understood as necessary for the mind. In fact, meaning and body are the two main topics of Johnson's theory, as he rejects the concept of Cartesian dualism. Beyond non-reductionism, he thus ventures further in his embrace of non-dualism. It seems to him that the purpose of cognitive science is to explain 'embodied meaning.' The body is contained in the mind, and the mind is correspondingly concerned with the body. In another cooperative work with Tim Rohrer,[109] Johnson expands on his cognitive theories and cognition research, giving a relatively complete outline in which both 'action' and 'body' play important roles in developing an understanding of the nature of cognition and mind. They write:

> The terms 'body' and 'mind' are simply convenient shorthand ways of identifying aspects of ongoing organism-environment interactions—and so cognition and language must be understood as arising from organic processes.[110]

Assuming a fundamental division between body and mind, first-generation cognitive science regards them as two ontologically distinct entities. Mind and body

[109] Cf. Johnson and Rohrer 2007.
[110] Cf. *Idem*, p. 17.

are members of different worlds, namely the internal world of mental events, and the external world of physical matter. With this gap, the internal world represents the external world through some 'third mediating thing,' which belongs to neither realm. The existence of this third mediating thing indeed poses the hardest challenge for both philosophers of the mind and cognitive scientists. However, Johnson proposes that the cognitive scientists of the second generation ought to abandon classical dualistic metaphysics and epistemology and seek an alternative philosophical strategy that may be found in the pragmatist ideas of James and Dewey. In general, rational and reasonable activities (as Peirce called them) are based on the perceptual experience of organisms. In fact, the former are extensions of the latter. Based on the views of James and Dewey, Johnson and Rohrer give the definition of a full-fledged theory of human cognition as consisting of three parts, which I will not outline here.[111]

According to the pragmatist theory of action and 'body-mind continuity,' cognition is a contingently emergent complex living phenomenon as well as the product of organic processes. That is to say, cognition is not produced by a single mind, but by a body-mind.

Furthermore, one finds that both Johnson and Fodor regard Cartesian dualism and pragmatism adversarial. Indeed, it does seem that Cartesian dualism and pragmatism are in principle incompatible. However, in my understanding pragmatism does not reject Cartesianism. Instead, it modifies the relation between materialism and idealism to one of neutralism (Peirce).[112] As a result, Johnson goes further against representationalism, which in his view results from the dualist division of mind and body and the tradition of Western thought known as analytic philosophy. This support for pragmatism and objections to representationalism, dualism, reductionism, and fundamentalism are all intertwined in Johnson's works, and I will briefly outline some of them.

In order to explain the cognition of the average living creature, the mind and body are regarded as inseparable parts of the same organism in which the organic process

[111] Cf. *Idem*, p. 23.
[112] I will return to this problem and discuss it further in Chapter Five.

necessarily produces cognition, while cognition itself is considered an emergent 'gift.' But this view is seemingly harsh, as in addition to being based on physical properties, cognitive properties are beyond them. As for the capacity for rational thought and reasonable action, cognition describes a sustained active relation between living creatures, their community, and their inhabited environments. According to Martin Heidegger, human beings are thrown into the experienced world. Therefore, we need to focus on the problem of authentic existence. Throughout this journey, our cognition can help us, and our body can guide us to better know and understand our nature.

Johnson and Rohrer found a similarly anti-dualist position in the works of James and Dewey and named it 'embodied realism.' According to the concept of embodied realism, cognition and language are *not* symbolic representations in the mind corresponding to external physical things, but rather the organic and creative product of life. Therefore, the process of cognition is subject to the influence of many factors. As the capacity for thought, cognition is not only present in intelligent phenomena; it is specific to certain situations. That is to say, cognition is the process of practice rather than theorization.

Thus the ultimate purpose of cognition is to create cognitive effects through the externalization of the meaningful content of the mind. In other words, it is direct knowledge of an immediate practical task. Therefore, 'embodiment' includes both the storage of thought and the possibility of action. In such a way, embodied cognition has been defined in five features.[113] This pragmatist definition of embodiment, as well as the embodied view of cognition, explains the cognitive process of an organism in relation to the real world. As a result, embodied cognition transgresses the restrictions of the representational world through concentration on problem-oriented cognition. The real world is the world that is represented either authentically or falsely, while the main point is to react, not only to cognize. In fact, both representation and misrepresentation are included in the realm of real experience. This may help the embodied mind get rid of the confusion of Cartesian dilemma.

[113] Cf. *Idem*, p. 19.

It is a 'sustained action' through which both relations among individual organisms as well as between organisms and environments take place. In this sense, cognition is geared towards the reflection and reproduction of the organism. It means that cognition is to be defined in terms of the purpose of an action. In this enactive perspective, the body plays an important role in the understanding of cognition; the body seems the 'acceptor' of experience while the mind is the 'switch' of such reception. In other words, the world would be closed without participation of the body. On the basis of this concept, Johnson enumerates a number of points in explaining the notion of 'body' in the process of cognition, which I will now cover.

Johnson emphasizes that the 'bodily dimension' is capable of structuring the mind. Cognitive creatures are living, and they are capable of acting as agents with these biological, ecological, phenomenological, and socio-cultural features.[114] For a living creature the body is not an empty container to be filled with soul. On the contrary, it is the body that provides the mind with its meaningful content. Therefore, mind and body are never separable. But the question remains: how would one explain this form of co-existence? From the Peirceian pragmatist perspective of cognition, the transsociation[115] of experience involves both bodily and mental perspectives, as well as that from body-mind to environment, and both follow 'the principle of continuity.' It means that the cognitive process is an uninterrupted process composed of various activities. In addition to attempting to integrate the role of the body with an explanation of the mind, the body-mind scale has been brought into a broader perspective of social and cultural bodies. That is to say, this body can be any container in order to figure the mind.

For Johnson, the purpose of philosophizing is to discover meaning—not in an abstract, higher-order sense, but meaning that has multilevel visceral depths. This sense of meaning is based on human understanding and is impossible to detach to human existence. Thus, meaning, thought, and mind are far from being independent entities, because the body is indispensable to all of them. The mind plays a role as the 'soul,' but not in the sense of a celestial entity bound for heaven; rather, what is meant by 'soul'

[114] Cf. Johnson 2007, Chapter 12.
[115] Cf. Peirce 1878; 1940 Buchler (ed.), p. 277.

is something bodily and sentimentally attached to life. We have feeling because of our bodies.

According to Johnson, human beings are both rational and animate.[116] However, does this mean that our rationality is inversely proportional to our being animate? From the perspective of Johnson, the answer to this would be 'no.' Based on embodied meaning, there is no radical gap between the cognition of different kinds of creatures. It seems fair to say that Johnson is a cognitive monist, and he employs the principle of continuity in order to bridge the gap left by Cartesian dualism.

In the theory of embodied realism, there are two central themes: one being 'body' and the other 'action.' I am now in the process of explaining the importance of the body for the mind, and I will explain the role of action in cognition later. Representationalists ignore both body and action, and this is why Johnson selects Jerry Fodor to represent the prototypical classical cognitive scientist. Contrary to the advocates of embodied cognition, Fodor and other classical cognitive scientists examine the 'disembodied mind,' known as the 'cognitive mind.' The limits of classical cognitive science are well known, and they are revealed by Johnson and Rohrer. They write:

> Classical cognitive science's cognition is defined narrowly as mathematical and logical computation with intrinsically meaningless internal symbols that can supposedly be placed in relation to aspects of the external world.[117]

And they also cite Fodor's explanation as taken from his *Psychosemantics*,[118] in which he writes:

> The postulation of a language of thought: an infinite set of 'mental representations' which function both as the immediate objects of propositional attitudes and as the domains of mental processes.[119]

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[116] Cf. Johnson 1987.
[117] Cf. Johnson and Rohrer 2007, p. 19.
[118] Cf. Fodor, 1987.
[119] Cf. Johnson and Rohrer 2007, pp. 16-17.

Through the lens of Johnson and Rohrer, internal representations of the mind are connected with the external environment via relations of 'being about' or 'referring to.' Yet, Fodor cannot ignore the 'nonsemantic' and 'nonintentional' terms in the process of linguistic understanding. It is the body that plays this role that Fodor leaves unexplained in his disembodied view of cognition. In theory, Fodor divides mind and body into two parts, and focuses on the former while dismissing the latter: this is why it is difficult to coherently integrate internal and external worlds. Thus RTM potentially leads to an infinite regress, and this poses a problem because Fodor overlooks meaningful bodily and environmental factors. And this is also why embodied cognitive scientists take a non-representationalist view without adopting the mind-body split. As a result, the classical representational as well as computational theories of mind are strongly criticized by second-generation embodied cognitive scientists; although computers are capable of representing and counting, they neither know where and why they got those capacities, nor how to modify and develop them automatically.

In the functionalistic explanation provided by classical cognitive science, mental symbols are considered bearers of meaning capable of representing and referring to the external world. In this way, an independent meaning system is constituted by mental symbols. It follows from this that every fictional mental object (such as unicorns and Pegasus) exists, even though they do not seem to exist in the *actual* world. However, in EMT this representationalist conclusion is too detached from reality, and the problem is that this view of cognition is useless for real world applications.[120]

Computers are akin to humans only in the sense that they are extensions of the human mind. They are instruments manipulated and controlled by the human mind for the purpose of realizing specific ideas and designs. Therefore, computers are no more than tools designed by humans to emulate human actions for the purpose of substituting human capabilities in the completion of human labor.[121] Although Turing-style universal machines are able to explain the mechanism inside human brains in a

[120] Cf. *Idem*, p. 19.
[121] Cf. *Idem*, p. 19.

metaphorical sense, it does not follow that Turing machines can take the place of human brains.

Even if a representational system that remains detached from the body could be deemed as complete and logical as possible, abstract thinking and formal reasoning might still not be appropriate for addressing real-world problems. Instead, they are more like idealized assumptions. Hence, according to Johnson and Rohrer, though the representational and computational theory of mind can be part of cognitive theory; it does not follow that such an explanation is universally applicable to the entire range of cognitive activities and organic potentialities of live creatures. As a result, the contents of the mind must be realized by 'embodied actions' in dynamic systems. Compared to the cognition lent by artificial intelligence via machinery, the cognition attained through the sensorimotor capacities of organisms is more real and concrete. Thus the cognition that cognitive pragmatists seek is not located in the mental theater; it can extend beyond this domain. Johnson's idea can be stated as follows:

> The key to this reconceiving of mind is to stop treating percepts, concepts, propositions, and thoughts as quasi-objects (mental entities or abstract structures) and to see them instead as patterns of experiential interaction. They are aspects or dimensions or structures of the patterns of organism-environment coupling (or integrated interaction) that constitute experience. The only sense in which they are 'inner' is that my thoughts are mine (and not yours), but they are not mental objects locked up in the theater of the mind, trying desperately to make contact with the outside world. As we will see, thoughts are just modes of interaction and action. They are in and of the world (rather than just being about the world) because they are processes of experience.[122]

From the view of cognitive pragmatists, the role of thought might not be replaced entirely with action; it is simply that they take thought to be a special constituent part of action. In this sense, cognition is a process rather than a state. The cognitive process

[122] Cf. Johnson 2007, chapter 6.

is constituted by experiential interactions. What the catchphrases ‘thought is action’ and ‘thinking is doing’ mean is that thinking is an indispensable part of doing, and vice versa. Therefore, the contents of cognition come from integrated interaction as well as the essentialness of experience; every cognition is further an ‘enaction’ containing both dynamic and creative features.

The mind-as-computer metaphor is the result of first-generation cognitive science, which seeks to explain higher-order rationality from a disembodied view. However, for cognitive pragmatists, meaning is embodied in both the nature of mind and the body as a whole organism. That is, mind arises from and becomes further structured by the body. In this way, pragmatist thought can be helpful both for refuting the earlier theory of cognition based on the cognitive mind, and in deepening the understanding of embodied mind. The high-order rationality of symbolic representations is challenged by a neutral view of pragmatism. It is not only Johnson and Rohrer who contend that action is cognition, but all of cognitive pragmatists. Action, as viewed by many cognitive pragmatists, is the core concept of pragmatism and forms the basis of a special type of cognition with embodied features in order to solve practical real-world problems.[123]

As a form of ‘situated cognition’ based on mind-body-environment, as well as an ecological system, action-oriented cognition eliminates the hierarchy of intelligence. It suggests that all creatures have equal cognitions insofar as they are suited to solve their own problems. That is to say, even if a creature’s cognitive structure is simple, this does not mean it is deficient, so long as it performs its functions well. This reason is also why Johnson and Rohrer highlight that the body plays an essential role in the process of cognition—because the body can perceive, and perception is seemingly enough to make the mind known.

Johnson and Rohrer conduct many experiments by explaining embodied cognition in the organism-environment interactions of many species—from the simplest unicellular organisms to human beings. Through various experiments, they demonstrate that every specific organism has similar adaptive processes of interactive coordination

[123] Cf. Johnson and Rohrer 2007, p. 19.

under specific recurring characteristics of its environment: characteristics that constitute typical meaningful patterns. This empirical research suggests that as a capacity of acting and enacting, cognition is present in many widely different species of organisms. Among these organisms, the realized differences are not the essence of cognition, because in facing the challenges of survival there exist no hierarchies of reasonableness with regards to action. This means that a higher degree of abstraction in thought does not necessarily imply a separate intellectual status higher than that of direct action.

Such ideas are inspired by the revival of the ideas of James and Dewey. As so-called philosopher-psychologists, both thinkers attempt to refute the explanations given by mind-body dualism and material reductionism. Instead, in the pragmatist view of cognition, the principle of continuity overcomes the divided landscape of classical dualism. As a result, the computational model of mental representation is no longer a sufficient explanation of cognition. Cognition always results in actual experience and action regardless of whether or not the mind represents or misrepresents the external world, because the source of cognition is *experience*, and thought is embodied and interfused with feeling. Johnson asserts:

> Thinking is not something humans 'bring' to their experience from the outside; rather, it is in and of experience—an embodied dimension of those experiences in which abstraction is occurring. Our ability to conceptualize is our chief means for being able to respond to the problems we encounter, to adapt to situations, and to change them when it is possible and desirable, via the use of human intelligence.[124]

Cognition is the search for meaning, and meaning is *central to* thought. This meaning is embodied, for it is interfused with our experience and feeling when we are actively participating in solving certain problems. Johnson supports the notion of enaction. Hence, cognition is regarded as actions bringing about actual effects, and the

[124] Cf. Johnson 2007, chapter 5.

content of cognition is human experience. Johnson further explains enaction in light of embodied cognition. He writes:

> [The] enactionist view defines the contours of our world and makes it possible for us to make sense of, reason about, and act reliably within this world; it remains us that we must read our scientific or philosophical perspectives on cognition back into the experience itself that we are theorizing about.[125]

It is pragmatism that directs human reason from a theoretical and abstract level to a practical and concrete problem. In such a way, for cognitive scientists it is helpful in locating the key to cognitive capacity and thus to render evaluable that which is difficult to see. This rich understanding of human reason is indeed one of the most prominent features of Johnson's theory. He does not reject trivial factors such as individual experience or external interventions. Instead, he attempts to give a realistic understanding of cognition with enhanced degrees of freedom. It appears that cognition is a useful art. In fact, this approach is similar to the view of Peirce, though Peirce might not advocate this kind of cognition as 'rational cognition,' but instead define it as 'rational purpose.'

In the framework of 4E [126] —embodied, embedded, extended and enacted cognition—the understanding of cognition is no less related to phenomenology[127] than to pragmatism. Johnson indeed embraces 4E and tries to introduce pragmatism into it. It seems that the embodied theory of mind includes the embedded, extended and enacted cognitions too.

In his discussion of evolutionary embeddedness (i.e. the adaptation of living creatures to environmental changes), Johnson introduces the naturalistic approach of James. Just as embodiment is the bridge of mind and body, embeddedness is the bridge of mind, body, and environment. It seems to Johnson that biological and neuroscientific

[125] Cf. Johnson 2007, chapter 6.
[126] Cf. Menary 2010.
[127] Cf. Rowlands 2010.

approaches are closely related to pragmatist ideas. James and Dewey are the earliest advocates of the embodied theory, whose legacy still inspires biological science today. He discusses their ideas thus:

> Cognition emerges from the embodied processes of an organism that is constantly adapting to better utilize relatively stable patterns within a changing environment. One problem for such a naturalistic account of mind is to explain how meaning, abstract thinking, and formal reasoning could emerge from the basic sensorimotor capacities of organisms as they interact with the environment and each other.[128]

It might be said that rational operations grow out of organic activities following the principle of continuity. In Johnson's pragmatism, there exist no intervals between perceiving, feeling, and thinking, and thus the boundaries between them are blurry. Rationality emerges from the organism; it cannot be reduced to ontologically fundamental levels.[129] This approach is similar to that of Engel et al. Moreover, Johnson and Rohrer find support for their action-oriented theory by looking into scientific experiments covering a wider range of cognition phenomena.[130]

We see that, even prior to the work of Engel et al., Johnson and Rohrer had already found a place for 'action' in cognitive science and explained emergent rational phenomena using pragmatist psychology. Unlike Engel et al., who—for the purpose of capturing appropriate actions and predicting possible ones—attempt to adjust and control for cognitive processes on the basis of operability, Johnson and Rohrer's point of departure is to understand scientific concepts and experimental ideas through explicability, and furthermore take them as support for the explanation of cognitive linguistics. As a result, human cognition is not only biological and neurologically meaningful: the human environment of which the body partakes is not solely physical or biological. Cognition is also composed of inter-subjective relations and

[128] Cf. Johnson and Rohrer 2007, p. 20.
[129] Cf. *Idem*, p. 25, p. 26, p. 29. I will not repeat the scientific experiments proved by Johnson and Rohrer, regarding their conclusions.
[130] Cf. *Idem*, p. 20.

coordinations of experience.

Since many simple organisms do not 'understand' the world through concepts, the concept is therefore not a necessary form of cognition. Instead, for an organism it is more important that it formulate a timely and appropriate reaction to external stimuli than to cognize the world. It seems that Johnson and Rohrer's interpretation of scientific experiments is full of metaphors. For example, some specific 'maps,' 'patterns,' and 'activities' are used to explain embodied notions like 'plasticity,' 'modality,' 'dynamicity,' 'imitability,' 'sociability,' 'practicability' and 'adaptability,' etc. In such an approach and in talking about the pragmatic turn, cognitive pragmatists concentrate on the topic of constituted experiences. Although the organism does not necessarily represent the external world, it is capable of building neural maps. The plasticity of these maps forms the basis of every behavioral adaptation. Therefore, after explaining the embodied cognition of organisms indiscriminately, an abstract and deductive cognitive structure is formulated that is able to supersede the current theory of mental representation. Johnson and Rohrer write: 'Our sensorimotor maps provide the basis for conceptualization and reasoning' and 'we perceive the patterns of our daily organism-environment interactions in image-like fashion.'[131] On the basis of neural maps, Johnson and Rohrer develop the hypotheses of neurological literature and neuroimaging, according to which cognition is not an intrinsic representation system, but an image-schema.

> Image schemas are precisely these stable recurring patterns of sensorimotor experience by which we engage a world that we can understand and act within to further our purposes…image schemas are neurally embodied as patterns of activation in and between our topological neural maps. Image schemas are thus part of our non-representational coupling with our world.[132]

[131] Cf. *Idem*, p. 26.
[132] Cf. *Idem*, p. 28.

Unlike RTM, the notions of the conceptual metaphor[133] and image-scheme are non-dualistic and non-representational. Instead of showing the coordination of internal representation and external reality, cognition is characterized by the coordination of sensorimotor experience via interactive activities and maps. Accordingly, Johnson writes: 'It is the *embodiment of meaning, understanding, and reasoning* that distinguishes second-generation cognitive science and makes it profoundly relevant for pragmatist philosophy.'[134]

Such maps and structures of organism-environment coordination correspond to nonrepresentational structures of meaning, understanding, and thought just as a real map can provide us with a path to our destination. In the framework of image-schemas and neural maps, the body becomes the center of meaning theory. Abstract concepts are metaphors ranging from bodily-based sensorimotor source domains to abstract target domains: For example, we have a long way to go until our campaign fund drive is finished. And also 'We have a long way to go before our theory is finished.' The most appreciated example that Johnson uses goes thus:

> Why can we use the phrase *a long way to go*, which is literally about distance in motion through space, to talk about the completion of a mental project (i.e., developing a theory)? The answer is that there is a conceptual metaphor PURPOSEFUL ACTIVITIES ARE JOURNEYS, via which some cultures understand progress toward some nonphysical goal as progress in moving toward a destination.[135]

For Johnson, mental states are projective, which means that they simultaneously serve mental projects. Therefore, embodied meaning is explained through an inferential image-schematic structure. In contrast to Johnson's approach—which focuses on conscious states contained in the direct experience of life[136]—Fodor concentrates on 'truth-conditional semantics,' setting out to explain the intentional content of mind.[137]

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[133] Cf. Johnson 2006, p. 373.
[134] Cf. Johnson 2006, p. 373.
[135] Cf. *Idem*, p. 38.
[136] Cf. Lakoff and Johnson 2002, p. 245.
[137] However, Fodor does not accept the 'action theory' of Donald Davidson.

As one of Johnson's most essential ideas, the notion of the conceptual metaphor is the inverse of the computer metaphor. What Johnson proposes is a mental scheme that describes the 'embodied mind' instead of the 'cognitive mind.' As an internal model, image-schema will take the place of mental representation. Furthermore, image-schema also reflect the abstraction process of conceptualization and reasoning. Johnson does not completely deny the function of representation,[138] but he proposes a special understanding of the concept that allows for grasping the meaning of terms and sentences from many different perspectives, experiences and imaginative understanding. Arguably, the most important component of Johnson's theory is his rich interpretation of human reason, in which subjective, individual, and environmental factors are all taken into account. The purpose of cognition is to achieve as much understanding as possible, rather than to engage in higher-order rationality. Here Johnson employs a very remarkable explanation in characterizing his cognitive pragmatism: He writes, 'This is our body as we live it and experience it. There is a way that it feels to be embodied in the way that I am embodied.'[139]

There is a way that it feels to be embodied in the way that we are embodied. In general, no matter what means we use to understand the mind, cognition is seeking a meaning that is as clear and reliable as possible. It is clear from this that the basis of 'embodied realism' is pragmatist philosophy. Living activities such as enaction and transaction include patterns of ongoing interactions, whose features encompass both bodily reality and mental abstractness.

In fact, both Johnson's CMT and Fodor's idea of LOT (Language of Thought) are hypotheses. The former is based on observation and induction, while the latter is derived from postulation and deduction. The 'cognitive mind' of Fodor is invisible, for it is only accessible under a certain symbolic system. This reason is partly why Johnson critiques Fodor's LOT: because it is cut off from both the body and the real-world. As a result, Fodor's representationalism is the main target of Johnson's criticism of first-generation cognitive science.

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[138] Cf. Johnson 2007, chapter 6.
[139] Cf. *Idem*, chapter 12.

Fodor and Johnson have quite opposite opinions on the nature of mind. According to Johnson, LOTH is a typical case of disembodied functionalist models, which amounts to a misleading mental picture or language-scheme based on mind-body dualism. The problem, however, is that Johnson's understanding of Fodor is incomplete and concentrated on the level of 'internal' representation. The objective of Fodor's theory is in fact more concerned with problems of 'intentionality' and the way in which mental representations are connected—the meaning of mental representations is compositional. These concerns have been largely overlooked in Johnson's criticism. Therefore, in order to clarify the relation between cognitive science—both in its earlier and later forms—and the philosophy of pragmatism, we have to look further into Fodor's RTM.

2.2 Fodor's representational theory of mind—the explanation of mental representation and intentionality

Although it seems to Johnson that Fodor's theory, known as LOT and RTM, is misleading, it has nevertheless retained mainstream status in the field of cognitive science. By contrast, Fodor expresses his dissatisfaction regarding recent developments in the field.[140] He is also well aware of the conflict between RTM and several new ideas such as eliminationism and instrumentalism. Instead of stepping back and resorting to compromise, Fodor insists on and further refines his earlier thoughts.[141]

The Johnson-Fodor debate is a good example of the various conflicts taking place within the field of cognitive science. One might wonder whether pragmatism is the reason behind the bifurcation of first- and second-generation cognitive science; and if so, then what precisely is the contradiction between pragmatism and representationalism? These are questions that need further explanation.

Next, I will sketch a general outline of the development of cognitive science through the lens of Jerry Fodor. For him, the field of cognitive science encompasses

[140] Cf, Fodor 2008.
[141] Cf, Fodor 1975.

many disciplines: linguistics, computer science, logic, psychology, and philosophy, etc.[142] As a typical anti-naturalist and firm proponent of the internal theory of mind, Fodor supports the notions of content,[143] concept[144] and mental representation.[145] According to him, the topics addressed by cognitive science are not *ex nihilo*. Many of them draw on the disciplines of philosophy of mind and epistemology in order to overcome the limitations of behaviorism. In fact, cognitive science is built on a critique of behaviorism, which yielded few prospects in providing a fundamental explanation of the mind. Such tendencies are apparent in Fodor's rejection of behavior and action theory as well as his attitude against behaviorism and so-called activism.[146] It seems that one of the key questions in the pragmatism debate is how to explain mental events.

With regard to these ideas, Fodor is against both behaviorist psychology and cognitive behaviorism. Instead, his representationalism (or cognitivism) is based on scientific metaphysics and representative realism. In contrast with Johnson's cognitive pragmatism based on the embodied mind, Fodor endorses a model of the cognitive mind that is basically severed from body or environment. In the cognitive mind model, thinking is unaffected by external factors. Unlike psychological activity, mental activity has absolute independence and priority. Such speculative psychology, as Fodor calls it,[147] becomes a guiding thread throughout his theory. Contemporary cognitive science faces six major questions,[148] and RTM is capable of adequately answering all of them:

Table 1.

i. What is the nature of mental processes?	Computation
ii. What kinds of things are mental representations?	Mental symbols
iii. How do mental representations have content?	Intentionality
iv. How do mental representations attach to the world?	Aboutness

142 Cf. Fodor 1987, p. 105.
143 Cf, Fodor 1990.
144 Cf. Fodor 1985; 1998; 2004.
145 Cf. Fodor 1985; 1987.
146 Cf. Menary (ed.) 2006.
147 Cf. Fodor 1975, 'preface.'
148 Cf. Fodor; Dedrick and Trick (eds.) 2009. In fact, Pylyshyn tries to answer some of these question which his new idea, known as FINST.

v. Are there bare demonstrative representations in the language of thought?	Yes
vi. If there are, what sticks them to their referents?	Concept possession

If the answers to the first four questions are evident, those of the latter two are left open. According to Fodor, it appears that the attitude towards mental representation reflects the key difference between cognitive science and the ordinary explanation of mind. In order to avoid the contradiction between the directness of experience and indirectness of symbolic representation, Fodor distinguishes between the notions of consciousness and intentionality. According to him, experience plays no role in the explanation of mentality. And the conceivable world has a higher priority than the perceptible world. Intentionality and the compositionality of thought are two of the difficulties that RTM needs to address.

Fodor is trying to build a bridge between the mental world and physical world. The mind is able to represent not only the external world, but also objects that do *not* exist in the external world. External objects are not taken as correspondences of mental contents; on the contrary, Fodor thinks that the former are references to the latter, and that they are connected by aboutness. Therefore, the mental world is not empty, for its contents are exactly what it thinks as well as what it is about. As was discussed previously, Johnson criticizes Fodor's dualism, though in fact Fodor does not advocate a dualistic view. Fodor asserts:

> Like the kind of cognitive science that *LOT 1* favored, it didn't endorse Cartesian dualism. Functionalism was in the air. According to functionalists, mental states are individuated by what they do, not by what they're made of; so it really doesn't matter (much) whether minds and bodies are the same kinds of substances.[149]

According to the functionalist explanation, the dualist distinction between mind

[149] Cf. Fodor 2008, p. 8.

and body is not a ruinous problem, because the question concerning the relation between mind and body is independent from the question of how to understand the contents of mind. In fact, Fodor's cognitive functionalism is quite similar to classical pragmatism in this respect, a quality also indicated in the works of Hilary Putnam[150] and Fred I. Dretske.[151] Basically, as a form of realism, functionalism attempts to provide theories about actuality under the assumption of a truth theory. In this sense, it can be said that representation is also part of reality. Unlike the less radical naturalism promoted by EMT, Fodor rejects the effectiveness of any physicalistic explanation of mental contents. Fodor does not attempt to explain the physical composition of the mind as well as the mental state, because for him the mind is like a blackboard upon which information is written in chalk. The physical composition of the chalk strokes themselves is irrelevant to the question of the meaning of the information written, which consists of immaterial symbols. What is important is to be able to understand the language indicated by these symbols; and the language of computers provides the optimal model for mapping this language of the mind.

The existence of mental representation is a basic assumption of RTM. 'Tokens of mental processes are 'computations'; that is, causal chains of (typically inferential) operations on mental representations.'[152] Fodor does not give any ontological account of mental representation. He makes the mental realist assumption that mental symbols exist. Similarly, in his computational theory of the mind, Zenon Pylyshyn explains the nature of mind also with the same assumption. For both of them, the purpose of cognitive science is to provide a content theory of the mind. Computation serves as causal chains between mental representations. In the philosophy-computer science cooperation between Fodor and Pylyshyn, the semantic theory of the former is fitted into the syntactic model of the latter. The cognitive system is a closed coherent system. Of course, the Fodor-Pylyshyn project is not without its criticisms.[153] For instance, although the project intends to reveal the connections between mental states, such states

[150] Cf. Putnam 1975.
[151] Cf. Dretske 1995; 2000.
[152] Cf. Fodor 2008, p. 5.
[153] Cf. Block 1978.

are not as transparent on the level of mental properties as on that of physical properties. And it seems that cognitive science is more concerned with the happenings on a physical level than a mental one. In response to this criticism, Pylyshyn suggests that, contrary to ordinary understanding, the subject matter of cognitive science is the contents of the mind rather than those of the brain—despite the fact that the mind is physically contained within the brain. He writes:

> Yet I believe that what we do here at the center for cognitive science is precisely that we study what is in the mind, even if we do not know where it is in the brain (and in fact even if there is no answer to the question of where it is in the brain—which is indeed the case for any interesting mental mechanism or mental state).[154]

Fodor continues his thinking on the nature of mind atop the background of philosophy of mind and epistemology. According to him, the mind is identical to the process of thought. The key to cognitive science is the distinction between the processes of 'representing as' and 'merely representing.' Fodor thus considers the problems of language alongside the problems of the mind. What he sets out to explain is not the phenomenon of representation per se, but the mechanism of representation and the compositional properties of thought. In other words, the contents of 'intentionality' as well as 'intentional content' can be explained away by conceiving of the content of meaning as being generated in the semantic structure of language.

In RTM, questions of 'intentionality' form the ultimate questions of the philosophy of mind and cognitive science. However, the answer to such questions are undermined by the lack of direct accessibility of mind.[155] Instead, 'consciousness' is another trend, but for Fodor, it is the research of intentionality that makes cognitive science difficult, while that of consciousness makes it impossible. It seems that Fodor does not believe the modern research nor the experimental results of cognitive science; he indeed reinterprets the philosophy and epistemology of mind with the computer metaphor

[154] Cf. Pylyshyn 1999, p. 1.
[155] Cf. Fodor 2008, p. 22.

regarding the function of thinking and the modality of mental contents. On the contrary, he rejects the theory of perception and action of the mind.

It follows from this that mental states with intentionality are considered fundamentally different from those without. In fact, one can divide cognitive scientists into two camps, according to how they answer the question about the nature of the mind: those holding that this nature is intentionality, and those who hold that it is a conscious state.[156] The former camp is composed primarily of computation theorists combining classical analytical philosophy and artificial intelligence, such as Fodor and Pylyshyn. The latter camp, on the other hand, is composed mainly of linguistic and psychologist behaviorists who are sympathetic to continental philosophy. In this sense, contemporary phenomenology adjusts the relation between intentionality and consciousness into a less contradictory one.[157] This trend is also involved in the development of cognitive science in France, especially enactive and dynamic cognition research.According to Fodor, mental states are not based on experience, and the contents of mental representation are also the contents of the intentionality-laden mind, which is composed of a series of concepts and ideas. Comparing this interpretation to Mark Johnson's view of consciousness, one can see a clear difference: 'Consciousness is a feeling of what is happening to you—it is how you know yourself as affected by what is happening at a given point in time, even though there is no fixed, eternal self that is being affected.'[158]

Unlike Fodor, Johnson underscores the 'conscious state' in the process of perception: one in which the presence of the self and body is indispensable to the obtaining of meaning. The distinction between Fodor and Johnson is most clearly indicated in their definitions of the mind: it is 'representation' according to the former, and 'experience' for the latter. For Fodor, intentionality is an essential character of the mind. Cognition is in this sense independent of states of consciousness or awareness.

The conscious state is composed of qualitative states of mind, which are mainly related to such sensations as pain or itching. These sensations, often without specific

[156] Cf. Block et al. (eds.) 1997.
[157] Cf. Petitot et al. (eds.) 1999.
[158] Cf. Johnson 2006, p. 375.

objects, are known as ‘qualia,’ ‘sense-data,’ ‘sense-given,’ or ‘immediate given,’ and are caused by awareness. Although it is hard to answer questions like ‘what is the object of itching,’ such sensations are nonetheless real perceptible objects. Even though physical objects produce givens, the given properties and relations do not belong to the physical objects or material processes. That is to say, the objects of mind cannot be fixed spatiotemporally. In fact, direct and indirect theories of perception produce many difficulties for the philosophy of mind. Three of the most important philosophers in this debate are J. L. Austin, A. J Ayer, and H. H. Price. It seems that Fodor may also accept such existence as sense-data, but does not perceive these states as especially problematic. Fodor analyses the potential contents of intentional states. Many of the mental objects therein are not directly perceptible.[159] Although such potential objects are not a part of empirical reality, for Fodor they remain nevertheless closely related to it. In addition, he also discusses the relation between the mind and mental representations in terms of propositional attitudes.[160] A propositional attitude expresses the contents of the attitudes as well as the intentional content of the mind.[161]

For instance, Fodor analyzes the contents of intentionality using the concept of ‘unicorn.’ A unicorn does not actually exist in a real sense; it cannot be perceived. As Fodor suggests, direct realism (Hilary Putnam) is mental realism without mental representation. Direct realism cannot overcome the problem of mental representation, because the contents of the mind cannot be directly and completely externalized—such as with the unicorn. The mental state of a unicorn remains a dispositional existence. It is an intermediate state between a unicorn ‘being wanted’ and a unicorn ‘being ridden,’ which is free from restrictions on the level of reality. In the case of the former, it is a conceivable token that is required, while in the latter, what is needed is a perceivable token. However, we can nevertheless conceive of a unicorn *without* the existence of a real unicorn.

In other words, the content of ‘unicorn’ has aboutness. The object of aboutness is

[159] Similar discussions about ‘potentiality’ is also an important topic of Peirce’s philosophy.
[160] Cf. Fodor 1981, p. 7. ‘A propositional attitude is, to a first approximation, a pair of a proposition and a set of intentional systems, viz. the set of intentional systems which bear that attitude to that proposition.’
[161] Cf. Fodor 2008, p. 69.

created at the moment the relation of aboutness is obtained. But since the object contains elements that can be empirically described, cognition is thus restricted by questions about actuality and reality. For instance, a unicorn is often described as an animal resembling a horse, but in terms of mental objects, a unicorn is fundamentally distinct from a horse. In this sense, the descriptions consist of an *otherness* that cannot satisfy the certainty and centrality of mental objects.

In general, for objects of the mind such as the unicorn, the question of their existence and perceptibility is not indeed essential, for a mental state can be about any *x*, even if *x* does not exist. In other words, the ontological status of a mental content is not the most important factor for determining the existence of a mental object in the real world. For instance, we can conceptually imagine a 'squared-circle,' i.e., give it a niche within a mental representation, even if it is inconceivable geometrically. This approach is the essence of representative realism. That is to say, the reality of the mind is concerned with the conceivability of thought.

Intentionality is also a disposition of the mind, and beliefs and desires are helpful for reasoning. Intentionality does not only play an important role in the process of expressing the contents of the mind, but can also guide possible actions. Therefore, unlike embodied cognitive science, RTM supposes that thought guides action, but not vice versa.

Fodor attempts to give a complete description of the mental world on the basis of folk psychology in order to understand the contents of the mind, instead of experiments on and explanations of mental states and processes derived from the sciences. According to Fodor, the contents of mental representations are also inseparable from the external world, but such contents are not restricted by the physical realities of the world. Although thought per se cannot directly affect the external world, we can conceive of the possible results of our behaviors beforehand. As Fodor suggests, 'Intentional psychology is the only candidate we have so far for a theory of how rationality is achieved,'[162] and '[the] same causally efficacious mental states are also

[162] Cf. Fodor Jan., 1985, p. 80.

semantically evaluable.'[163] Fodor is not an advocate of mid-20th century psychology,[164] nor does he have any sympathy for James's pragmatism.[165] This reasoning is probably the rationale behind his general rejection of pragmatism. It appears that what James wants to introduce into 'experimental psychology' is that which Fodor wants to exclude.[166] It is undeniable that James's pragmatism—and especially his analysis of the complexity of human cognition—has had a great influence on psychology and many other social sciences. However, Fodor's RTM is unaffected by James; rather, Fodor is more interested in thinkers such as Descartes and Hume. It can thus be said that Fodor's theory of cognitive science is more like a reconstruction of classical epistemology in the face of contemporary computer science. He attempts to renew and reinforce the theoretical architecture of mental representations through modern engineering.

Just like a specific language, the computer has its own internal system of representation and counting with both syntactic and semantic elements. The contents of these systems are externalized through specific programs. But since computers do not have any autonomous motive, they are in fact merely aiding the human mind in fulfilling thought-intensive tasks. Contrary to the view of Fodor, Johnson sees cognition as a kind of action. In this sense, cognition consists of purposeful practice, rather than a pure thinking activity. In Aristotelian terminology, we might say that Johnson is concerned with 'the final cause' of cognition, while Fodor is more interested in 'the formal cause' of cognition.

In clarifying the contents of the mind, Fodor does not give much of an explanation for the operation of the computing mechanism. Instead, he discusses the similarity between computational cognition and representational cognition. Fodor does not devote too much time to an explanation of the logical rules of a computer. He focuses on explaining the logical relations of the representations that are contained in the meaning of thought. In fact, this project is not to prove the existence of mental representation, but to account for the necessity of such existence. Drawing from his background in

[163] Cf. *Idem*, p. 78.
[164] Cf. Fodor 1987, p. 106.
[165] Cf. Fodor Jan., 1985, p. 92.
[166] In fact, in *LOT 1*, Fodor advocates the psychology of James and Dewey, but he charged it later.

linguistics and psychology, Fodor lays bare the connections between mental representations. That is to say, one of the central questions for cognitivists is: how are mental representations connected?

By conceiving of mental contents as 'symbols,' Fodor suggests that a mental representation is a mental symbol. Fleshing out the linguistic structure with intentional content, Fodor's language of thought hypothesis bears some similarity to Noam Chomsky's views on the propriety of language. This connection is why both Fodor and Chomsky are regarded as 'neo-Cartesians.' For them, action is the externalization of thought.[167] According to Fodor, such a priori linguistic capacity is not unlike the calculation capacity of a computer. Therefore, understanding the connection between 'language' and the world is instrumental for grasping the link between 'thought' and the world.

Of course, mental representation is not a combination of 'mind' and 'representation.' It is not helpful in making oversimplifications by putting all the intentional properties on the mental side and all the semantic properties to the linguistic side. In fact, not only does representation itself involve mental properties, the semantic properties of linguistic symbols are also essentially intentional. In other words, what language expresses consists of the intentional contents of the mind. In this sense, Fodor engages in radical mentalism. Mental contents can be realized via propositional attitudes, and linguistic symbols can be realized through causal and deductive chains.

Assuming the computer metaphor, Fodor implicitly embraces a sort of functionalism. Therefore, the psychologist's theoretical taxonomy is independent of physical properties. In other words, the contents of mental states remain incommensurable with scientific explanations of brain states and neuroscientific analysis. In this sense, Fodor rejects the connectionist project of comparing the states of the nervous system to states of mind.[168] Belief and desire are mental states that can be functionally explained, even though their contents are not connected in ways explicable through physics. So we can say that Fodor rejects the physical reductionism

[167] Cf. Fodor 2008, p. 11.
[168] Cf. Fodor and Pylyshyn 1988.

of mental properties and disagrees with mental associationalism such as seen in the approach of David Hume. For Fodor, cognition is language-like, but not picture-like. But neither can we say that Fodor's position is mental reductionism, as Johnson suggests. This is because according to Fodor, mental states are not monadic; that is, the boundaries between mental states are by no means clear-cut. It does not consist of a mental representation connected to another mental representation in the form of a mental representation beside a mental representation; they are compositional, and possess both systematicity and productivity. Hence, the units of the mind are not discrete atoms; they can be speculative, but they cannot be reduced. Unlike a syntax-driven machine, mental representation is subject to multiple and complex explanations. Thus, one can see here the connections between Fodor's RTM and structuralist linguistics. However, Fodor does not mention such ideas in this mental architecture in addition to a modality of mind.

But to an even larger degree, Fodor's theory is closely related with the ideas of Descartes[169] and Hume,[170] which themselves differ from any pragmatist project. It seems to Fodor that a theory of mind should be more mentalistic than behavioristic: *the thought about the world* is always prior to *thought about how to change the world*; in other words, *knowing that* comes before *knowing how*.[171] In *LOT2* as well as in *LOT1*, Fodor shows that 'the content of thought is entirely determined by its structure together with the content of its constituent concepts.'[172]

In expressing his worries regarding rationalism and behaviorism, Fodor contends that reason is not the highest court, and behavior is neither the original goal nor the final result of cognition. By the same token, Fodor also rejects pragmatism. For him, pragmatism merely provides an explanation to reason as well as an objective, neither of which is crucial for the unique nature of the mind. He criticizes the eliminative materialism of Paul Churchland,[173] in which the pragmatism of John Dewey is

[169] Cf. Fodor 2004.
[170] Cf. Fodor; Rescher (ed.) 1987.
[171] Cf. Fodor 2008, p. 14.
[172] Cf. Fodor 2008, p. 17.
[173] Cf. Churchland Feb., 1981.

implicated. He also criticizes the 'inferential role semantic' of Denial Dennett,[174] in which the pragmatism of William James is perhaps involved. According to Fodor, human thoughts are not instrumental to value realization. This reasoning is probably why he once condemns pragmatism as the most disagreeable type of philosophical thinking.

According to the above analysis, we can see that there are two primary topics in Fodor's theory: the first one being his theory of mental representation, and the other his project of cognitive science as the revival of classical epistemology. Although this position is partially similar to that of Peirce, Fodor's theory does not of course rely on the thinker's semiotics. As a functionalist, Fodor does not agree with the naturalist explanation of mind. Although functionalism is highly compatible with naturalism, Fodor rejects the latter. However, contrary to what Johnson thinks, Fodor is not in fact a dualist. Instead, he attempts to account for the mechanism of the mind in a functionalist manner.

Besides developing his representational theory of mind, Fodor also radically rejects pragmatism in a broader sense. It seems to Fodor that pragmatism is akin to a 'bad cold' in cognitive science; especially in the domains of artificial intelligence, philosophy, and cognitive psychology.[175] He also expresses vehement objections to the current pragmatist tendencies in the field at the beginning of *LOT2*: 'What's essential to thought is not its relation to the things in the world that it represents but its relations to the actions (the 'behaviors') that it guides.'[176]

In fact, a similar criticism of pragmatism has already appeared in Fodor's earlier works. In the following section, I will analyze these ideas and begin to consider two crucial questions: 1) Do Fodor's early critiques of pragmatism remain consistent with his later ones? And 2) does Fodor's objection to action-oriented theory lead to the development of his later theory of mental representation? If the answer to both questions is affirmative, then it follows that the distinctions between the first and second

[174] Cf. Dennett 1986.
[175] Cf. Fodor 2008, p. 12.
[176] Cf. Fodor 2008, p. 8.

generations of cognitive science would be more prominent in terms of action theory. But even if action plays an important role in the pragmatist movement, it is still not clear how important the notion of 'action' is to classical pragmatism. This question will be answered later in the dissertation. Now, however, I am going to analyze in greater detail Fodor's criticisms of action theory and pragmatism.

2.3 Fodor's challenge to pragmatism—his criticism of action theory and rejection of concept pragmatism

2.3.1 Fodor's criticism of action theory

Criticism against 'action theory' has already appeared in one of Fodor's earlier works. The target of Fodor's critique, however, is the action sentence theory of Donald Davidson.[177] In this section, I am not in the position of discussing Davidson's theory. Instead, I will examine Fodor's criticisms of Davidson's theory.

Davidson created a super theory of meaning, which he labeled a 'theory about the theory of meaning.' He explains that 'a theory of meaning of meaning for the (natural) language *L* ought to take the form of a truth definition for *L*. That is, such a theory ought to recursively associate each truth-valuable sentence of *L* with a representation of its truth conditions.'[178] According to Fodor, what Davidson wants 'is a theory which pairs each (declarative) sentence in a language with a representation of its truth conditions and which does so in a way that reveals whatever semantically significant structure the sentence contains.' [179] However, Fodor criticizes this form of 'truth condition-semantics' on the grounds that Davidson does not explain the compositionality of the sentence.

Davidson distinguishes *metalanguage* from natural language and takes the former as the basis of the latter. Truth definition is regarded as the logical form of language, which also contains semantic contents. This logical form of truth is absolute and it

[177] Cf. Davidson 1967, pp. 81-95.
[178] Cf. Fodor 1970, p. 298.
[179] Cf. *Idem*, p. 299.

rejects trivial conditions. In other words, Davidson wants to put all possible sentences in the same structure. However, according to Fodor, this view is problematic, given that natural language needs empirical contents. It is inevitable that the contents of natural language and the form of metalanguage be inconsistent. And although a natural language can be formally restricted by specific rules, it cannot, in principle, be completely *axiomatized*.

Fodor casts doubt on Davidson's theory with his argument that the logical behavior of action sentences cannot tell us anything about the real features and meaning of the sentence. Hence the 'Davidsonian paraphrase,' as Fodor calls it, only gives a normal form or descriptive structure to the semantic treatment of adverbial modifiers on action sentences, which is insufficient for the interpretation of metalinguistic structure. Fodor asserts:

> Actions are, presumably, a proper subclass of events. Sentences which report upon the properties of actions may thus be treated as consisting of (a) expressions referring to events (or variables whose values are designated by such expressions) and (b) predicates over such expression.
>
> Adverbs in action sentences report properties of events, and the logical form of an action sentence containing adverbial modifiers is a conjunction.[180]

According to Davidson's truth-conditional semantics, the eventual contents contained in sentences are not closely interconnected. The way in which they are related is more like negotiated and meaningful reconstruction. Because of this property, they do not reflect the relation between action and mental properties. This problem persists on both the semantic and syntactic level because action can neither discard its guiding principles nor other subject matters. Action is purposeful behavior. Fodor also points to the limits of action sentences in expressing the contents of natural languages. The logical conjunction does not cover all the possibilities of the real connection between

[180] Cf. Fodor 1970, p. 301.

events. There are indeed non-logical modifiers in the logical forms of languages. In fact, action-oriented semantics, even in logical form, does not offer explanations for the 'intentional content,' nor can it reveal all the possible events contained in a sentence. More specifically, the contents of the mind are still adjustable even after the sentence is expressed—which means that action-oriented language proves no more stable than the language of the mind.

In *LOT2*, Fodor also criticizes Davidson's view of psychology,[181] which invokes the usage of dispositional interpretation. In addition, Davidson's triadic relation of perceiver, percept and interpreter does not give a clear order of priority among the three elements.[182] Instead, Fodor proposes an 'interpretation-dependent' understanding that is neutral with respect to all three elements. Similar ideas can be found in Peirce's triadic relation of sign, object, and interpretant.[183] In this triad, the meaning of the sign plays a similar role to the content of the mind. It is the interpretant that functions as a necessary connection between symbols and objects. Furthermore, the interpretant plays the most essential role in explaining the relation between perceiver and percept. However, Fodor unfortunately neglects to treat Peirce's theory in his critique of pragmatism. Considering the similarities between Fodor's RTM and Peirce's semiotics, it seems that Fodor could have made better use of the latter's legacy in defending his idea. In Chapter Five, I will approach some important aspects of Fodor's RTM from a Peirceian perspective.

Even in logical form, an action sentence does not sufficiently cover the contents of the mind as well the process of thinking. This is probably the grounds for Fodor's objection to the pragmatist view of the concept of acquiring and possessing, known as 'concept pragmatism.' In explaining the language of thought, Fodor resorts to logical semantics but without the inferential explanations such as those comprising actions. Instead, what he tries to explain is the intentionality of mind and the way in which mental events are connected. Although Fodor's computer metaphor suggests a parallel

[181] Cf. Fodor 2008, p. 31.
[182] Cf. Davidson 2001.
[183] Cf. Peirce; Buchler (ed.) 1940, p. 99.

between the mechanism of the mind and that of logical language, Fodor is skeptical regarding the analyticity of logical language and rejects the idea of analytic pragmatism. In general, it seems to Fodor that, although Davidson's theory of truth provides a model of metalanguage, it is still unable to provide a satisfactory theory of meaning. Fodor writes:

> The theory of meaning is a relatively simple algorithm which takes sentences of natural languages into formulae which have a complicated syntax and which behave in accordance with rules of inference no one has yet been able to state.
>
> Systems of representation which permit sentence conjunction, but not constituent modification, have, to that extent, got the desired properly. [*sic*][184]

In his rejection of action-oriented semantics, Fodor conceives of another type of formalization of natural language which most likely serves as the prototype to the language of thought hypothesis. Logical laws are not mental laws, because logical forms are not capable of constraining the contents of the mind. In other words, contents of the mind can refer to impossible objects such as a 'squared circle' or things that do not actually exist, such as unicorns. Furthermore, the mind is capable of thinking independent of any action; for instance, in an imaginative flight of fancy. Thus, Fodor attempts to construct a conceptual theory of the mind capable of revealing the internal predicament of the mind in a manner that remains neutral to any actions.

Although seen as a central concept in the field of cognitive science, Fodor rejects the notion of action. He argues that, although action-oriented semantic theory can construct a way of thinking, it might also neglect many details and trivialities. Instead of understanding natural language by means of logical forms, Fodor forms arguments based on natural languages and common sense. But it is undeniable that pragmatism is attracting a broader range of devotees from logical behaviorists than ordinary language theorists of actions. And the 'logic' in pragmatism is not narrowly understood in the

[184] Cf. Fodor 1970, p. 316.

sense of pure mathematical logics. Rather, it implies a broadly logical relation. As a logician, Pierce also prefers intuitive logical relations.[185] For him, logic is not an external restriction, but an internal rule of the mind.[186]

Although Fodor does not especially distinguish between behavior and action, he rejects both behaviorism and action theory. It seems to him that Davidson hails from the ranks of sophisticated behaviorists, promoting a theory that has already been deemed obsolete. In general, for Fodor neither science nor formal logic is capable of explaining the intentional contents of the mind. Instead, he harkens back to the tradition of Descartes.

2.3.2 The rejection of concept pragmatism and the Cartesian regression

Fodor's skepticism with regard to pragmatism is clearly strong and indiscriminate. But it can be seen from further analysis that what Fodor rejects is not pragmatism in its original form, but rather an instrumentalist subspecies of thought called 'concept pragmatism'—namely, pragmatism relating to concept possession. Fodor discusses the topic of concept formation in some of his intermediate works[187] on the basis of which he later develops a more systematic critique of pragmatism.[188] Pointing out the negative effects pragmatism has had on the philosophy of mind for the last century, Fodor voices his dissatisfaction with the recent development of cognitive science under the influence of pragmatism. In the following sections, I shall outline Fodor's theory of concept possession and attempt to clarify the relation between pragmatist and Cartesian theories of concept possession. Fodor writes:

> To have the concept C is to be able to distinguish Cs from non-Cs, and /or to recognize the validity of certain C-involving inferences.[189]
>
> Epistemic states are inherently normative (knowing-that-P is *getting it right* about P;

[185] Cf. Peirce January, 1897.
[186] Cf. Peirce July, 1892.
[187] Cf. Fodor 1995; 1998.
[188] Cf. Fodor February 2004; 2008.
[189] Cf. Fodor 2004, p. 29.

> knowing how-to-X is having one's attempts at X-ing *come of properly*; so claims about concept possession are inherently normative too.[190]

According to concept pragmatism, there exists a special mental state called 'concept possession' which displays features of epistemic, dispositional, and normative states. As pragmatists suggest, the contents of thought can be expressed in epistemic, dispositional, and normative ways. However, it seems that for Fodor, this does not constitute an essential explanation of the nature of mind. Rather, it is an intellectual interpretation based not only on rationality, but many other motives as well. Fodor claims that most behaviorists belong to the school of concept pragmatism. He distinguishes three kinds of behaviorists: the rude behaviorists, such as Quine and Skinner; the sophisticated behaviorists, such as Ryle, Wittgenstein and Davidson; and the 'social and practical behaviorists,' such as Dewey, Quine, Wittgenstein, Davidson, etc. (Quine, Wittgenstein, and Davidson are indeed implicated twice). The latter school is the most influential. On the one hand, they underscore the priority of behavior to thought in the order of analysis; on the other, they take into consideration the social and interpersonal characters of thought. In addition to his critiques of these three prototypical varieties of behaviorism, Fodor also criticizes other schools of thought, such as the logical behaviorists and logical realists.

For cognitivists, thinking is prior to acting, as the contents of action are already realized in the mind before they are enacted. Although the possession of a concept can be seen as a realized idea, the key to the thinking process is the idea itself. Fodor distinguishes between two kinds of concept possession: one being pragmatism, and the other Cartesianism. In *LOT2*, Fodor differentiates between pragmatist and Cartesian theories of concept possession with respect to the aspects listed in the following table:[191]

Table 2.

[190] Cf. *Idem*, p. 30.
[191] Cf. Fodor 2008, p. 10, p. 12.

	Cartesians	Pragmatists
Thought and Perception	Thought is prior to perception	Perception is prior to thought
Concepts and Percepts	Concepts are prior to percepts	Percepts are prior to concepts
Thought and Action	Thought is prior to action	Action is prior to thought
Concept individuation and Concept possession	Concept individuation is prior to concept possession (in the order of analysis)	Concept possession is prior to concept individuation
Action and Thought	Action is the externalization of thought	Thought is the internalization of action
Abilities and Theories	Theories are prior to abilities	Abilities are prior to theories
Competence and Content	Content is prior to competence	Competence is prior to content
Knowing how and Knowing that	Knowing that is prior to knowing how	Knowing how is prior to knowing that
Being about and Being in	Thinking as being about the world	Thinking as being in the world
Action and Thought	The world is what makes your thoughts true or false	The world is what makes your actions succeed or fail

Belief and Plan	True belief	Successful plan

As opposed to the pragmatist theory of concept possession, Cartesianism promotes that having a concept *C* is being able to think about *C*s 'as such'.[192] This concept-possessing state is non-epistemic. In other words, thinking is a pre-epistemological state, whereas pragmatism contains concepts and explains thoughts with epistemic conditions invoked in addition to epistemic evaluations. Fodor yields more to the approach of Hume and Descartes. For these thinkers, internal states are about what you are able to think about, but not about what you know, how or that, that determines what concepts you have.[193] It seems that *how to think* is not equivalent to *how to know*—an epistemological state is not a certain state of knowing. Fodor embraces the Cartesian truism: For him, concepts are *for thinking*, and also *for thinking with*.[194]

As seen in Table 2, in Fodor's concept possession theory thinking is prior to action, which is its externalization. Furthermore, Fodor notes that pragmatism contains assumptions that might lead to circularity. In other words, pragmatist concept possession theory trivializes and to some degree invalidates the question about the connection between mind and world.[195]

The reason for Fodor's anti-pragmatism largely stems from pragmatism's overemphasis on the effects and value of action. On the one hand, thinking has its effect in action, making it projectable, and on the other hand, action lends realizable significance to thinking. These two aspects are far from mutually exclusive. In fact, thinking itself is a sort of independent and meaningful activity; and action is much more complex than the mere externalization of thinking. This characteristic can be seen in the fact that many objects of thought are non-existent. Unlike the action-oriented cognition theory of Johnson and Andreas K. Engel et al., Fodor asserts a theory of Cartesian and thought-oriented action. He says:

[192] Cf. Fodor 2004, p. 29.
[193] Cf. *Idem*, p. 31.
[194] Cf. Fodor 2008, p. 48.
[195] Cf. *Idem*, p. 9.

> It assumes that relations among the contents of mental states are in play in typical propositional-attitude explanations. In the present case, it's part of the mentalist story about how thoughts guide action that there is a certain relation that typically holds between the content of the agent's beliefs and the content of his desires.[196]

In general, the debate between cognitive pragmatism and anti-pragmatist cognitivism reflects the opposition between the Cartesian view and the pragmatist view. Furthermore, in giving a bare-bones version of Concept Pragmatism (BCP), Fodor suggests that such a theory is ostensibly though not necessarily false. For although both the 'sorting' and 'epistemic' capacities of pragmatism are not in principle wrong, they nonetheless do not have substantial utility for explaining the nature of the mind. He says:

> Epistemic capacities are ipso facto relativized to factors like good instances and favorable conditions, neither of which composes. So epistemic capacities do not themselves compose. But BCP is not compatible with the compositionality of concepts. So BCP is not true.[197]

According to Fodor, the pragmatist explanation of mental contents is both fallacious and incomplete. Pragmatist concept possession theory conceals many options to the effect that it avoid some difficulties in explaining the mind. In fact, Fodor gives three reasons to reject the BCP, which are 1) analyticity, 2) compositionality, and 3) circularity. The epistemic constraints do not explain the contents of mental facts. By contrast, according to Fodor, 'persisting in confusing epistemology with semantics was one of the ways that Pragmatists made a mess of 20th century philosophy of language and philosophy,' and 'BCP is committed to conceptual role semantics,' but 'conceptual

[196] Cf. *Idem*, p. 15.
[197] Cf. Fodor 2004, p. 39.

role semantics is afflicted with holism and with failures of compositionality'.[198]

As a self-contained methodology, it seems that pragmatism does not improve our reflections on the nature of mind. The satisfied conditions of pragmatist semantics obscure its explanations of compositionality. Instead of embarking on the road of pragmatism, Fodor suggests that cognitive science should take place within the framework of classical Cartesianism. He borrows the following metaphor in describing the current situation:

> Thought causes behavior in the way that fragility might cause the glass to break.[199]
>
> What causes a fragile glass to break isn't its being fragile; a glass that is fragile may sit intact on the mantelpiece forever. What causes a fragile glass to break is *its being dropped*.[200]

From Fodor's representational realist point of view, while the reason for the glass breaking is its being dropped, it is fragility that remains the crucial idea of thought with respect to its possible sequences. It is the internal state of mind which is composed by thought independently. Fodor does not reject action as such, but rather takes thought to be *prior* to action.

It should be noted that the opposition between Mark Johnson and Jerry Fodor, far from being an isolated phenomenon, is symptomatic of a broader theoretical tension taking place within the field of cognitive science itself. That is to say, what has been expressed includes different understandings of pragmatism, such as 'James-Dewey's pragmatism' and 'concept pragmatism.' Likewise, both parties respectively defend their own approach (Johnson: CMT & Fodor: RTM) without clarifying our understanding of pragmatism. As a result, the 'non-existent' debate between Johnson and Fodor becomes most conspicuous in different views about pragmatism.

It indeed seems curious. Why have cognitive scientists and philosophers interpreted pragmatism in so many different ways? Although their theories of cognition

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198 Cf. *Idem*, p. 47.
199 Cf. Fodor 2004, p. 30.
200 Cf. Fodor 2008, p. 49.

are different, why has pragmatism been invoked? In theory, pragmatism should not have sparked such controversy in the field of cognition research. The truth of the matter is that pragmatism has not yet to be clearly presented in the cognitive science literature. For this reason, I will in the following chapters attempt to revise our understanding of the current state of affairs, moving from a 'view of cognitive pragmatism' to a 'pragmatist view of cognition.'

Upon further examination, perhaps pragmatism has provoked both positive and negative reactions in cognitive science without its own ideas and sentiments being sufficiently understood. Hence, in the following two chapters, I will tackle: First, why are the ideas underlying pragmatism clear in some ways, and in others so misunderstood? Second, why does pragmatism possess virtue in proposing the positive and objective perspectives of applicability, adaptability, flexibility, usability, operability, infallibility, indefinability, plurality, rightness, clearness, unambiguousness and comprehensibility—yet claim responsibility for causing such significant confusion and negative influence in cognitive science? In essence, it appears that the time has finally come for pragmatism to be investigated thoroughly and properly. Too many complications have arisen thanks to the misuse (and perhaps abuse) of it as a concept. It is possible that both the representational and embodied theories of mind may discover some benefit in embracing pragmatism. But if there is any hope of this occurring, we will first need to gain a clear understanding of pragmatism itself.

Chapter Three

Classical Pragmatism: a Retrospection of the History

As we saw in Chapter Two, the Johnson-Fodor debate yields only a slight controversy with respect to the original ideas of pragmatism, and yet contains many different understandings of the nature of cognition. For instance, Johnson favors a very specific strain of classical pragmatism, namely that which is found in the writings of James and Dewey, whereas the form of pragmatism that Fodor is objecting to is that of the theories of meaning and action inspired by Wittgenstein's later work: the ideas widely known as 'definitions-in-use' and 'analyses of rule-following.' Furthermore, Johnson advocates classical pragmatism whereas Fodor objects to the ideas that have arisen from this tradition, which can be further characterized as a branch of neopragmatism extending into cognitive science through subdisciplines such as the philosophy of mind, language, and epistemology. Influential neopragmatists include Hilary Putnam, Richard Rorty, Daniel Dennett and Paul Churchland. Dennett and Churchland are indeed two of the most prominent targets of Fodor's critique of pragmatist thought. Distinct from those semantic externalists, Fodor endorses an internalist theory of mind. Several conclusions can be made here.

First of all, based on the analyses in Chapter Two, Johnson's second-generation cognitive science still appears to be an unreliable tool for galvanizing a significant 'pragmatist turn' in cognitive science. Unlike the ideas of James and Dewey, Johnson overlooks a significant number of relevant and enlightening ideas produced by equally important thinkers such as Peirce and Schiller. For instance, Peirce was able to shed light on Dewey's pragmatism and gain significant ground in the discussion. Moreover, the ideas of James were often invoked in discussions with Schiller. Secondly, although Fodor's rejection of pragmatism remains strong, it is also unduly narrow and harsh. It is important to note that Fodor has overlooked certain key pragmatist views regarding

the function of representation. As a case in point, in Dewey's instrumentalism the function of representation is stressed. Also, the Peirce's variant of pragmatism reflects on representation as well as the object of the concept, which plays an important role in generating meaning and transferring it coherently. Fodor has also overlooked the critique of action present in the peculiar perspective of Peirce. This collection of omitted ideas and concepts bring to the fore a critical element of both the 'pragmatist cure' from Johnson's perspective as well as what Fodor might regard as the 'pragmatist cold.' Though I do not think such views are necessarily faulty, they would nevertheless benefit from in-depth academic scrutiny and analysis.

Hence, the contradiction between the representational and embodied theories of mind might not stem from Johnson and Fodor's opposing views on pragmatism as was originally assumed to be the case. Instead, both parties are operating under completely different conceptions of pragmatism. Indeed, it is worth considering the contributions that critical yet overlooked opinions have contributed towards arriving at an adequate definition of both 'cognitive pragmatism' and 'anti-pragmatist cognitivism.' Nevertheless, it is first necessary to further examine the ideas from both sides of cognitive science.

In the first two chapters, I introduced certain influential ideas introduced by cognitive pragmatists, while identifying and clarifying certain misconceptions. Likewise, my arguments regarding the 'pragmatic turn,' and 'pragmatist cold' are in need of further development and critique. In addition to cognitive scientists' conception of pragmatism, I will conduct parallel research on cognitive science from the perspective of pragmatists.

In order to spark a more significant turn in cognitive science, further exploration and clarification needs to be made. First of all, I will examine this idea from a particular revisit of 'classical pragmatism.' Once its philosophical value is rediscovered, the intrinsic problems of pragmatism and its complex history will also be exposed. Thus, in Chapter Three I will engage in historical clarification of pragmatism. Then, in Chapter Four, I will perform a theoretical exploration of the original thoughts and fundamental tenets of pragmatism as they appear in the works of Peirce, James, Dewey,

Schiller and Mead. Finally, in Chapter Five, I will advocate the pragmatism of Peirce as a solution to the problems and misunderstandings inherent in the Johnson-Fodor debate. This reconsideration will be carried out in order to spark research into the possible benefits that Peirceian pragmatism would bring to both the concepts of the 'embodied mind' and that of the 'cognitive mind.' Before this last step can be taken, however, I will need to cover more information as well as clarity our understanding of pragmatism. Several questions will be examined:

(1) Why might pragmatism have given rise to so many different trends?

(2) What is it about pragmatism that lends it to such easily avoidable misunderstandings?

(3) Why do researchers of pragmatism always find cause to mention that the theory lacks clarity?

There is no one answer to all of the above questions—the ideas of pragmatism are too rich for that. In the following section, I will thus offer a defense of pragmatism's richness.

3.1 A historical examination of the ideas of classical pragmatism

As with my methodology of removing obstacles to the examination of the cognitive view of pragmatism, I apply this same method in my revision of pragmatism and the pragmatist view of cognition. That is to say, I will not examine the entire history of the discipline, but rather introduce essential features in order to illustrate the importance of the idea and the trajectory of the theory itself.

Recently, there has been a tendency in philosophy to try and cross-associate analytic and continental philosophy.[201] While technically part of the analytic tradition,

[201] Cf. Egginton and Sandbothe (eds.) 2004.

I reinterpret pragmatism in a transdisciplinary way in order to understand the intellectual and cultural configurations of modernity. As a result, I revisit ideas drawn from pragmatism in order to frame the modern way of life as well as various life forms' incommensurable ways of thinking and living.

Richard J. Bernstein has regarded the 20th century as the 'pragmatic century.'[202] In fact, Bernstein's own pragmatism has also contributed to this association between American and continental thought. It would thus be fitting to say that pragmatism is an advanced school of thought that can assist in illuminating intellectual life in a practical society that is undergoing innovation and change. It is no wonder that pragmatism is quickly gaining traction in both the public and academic realms.

These facts readily justify the expectation of a possible trend in which we see the value of pragmatism being embraced in a more general sense. It appears that a revival of pragmatism may be possible in our generation, given the growing popularity of cognitive science. However, pragmatism has provoked its fair share of criticism as well. As we have already seen, Jerry Fodor is one of the hardliners who reject pragmatism. For him, pragmatism confuses epistemology with semantics, to say nothing of psychology, and has made a mess of twentieth-century philosophy of language and philosophy of mind.[203] Although his opinion is critical, pragmatism faces many possible contradictions. But could these different interpretations of pragmatism be reduced through an application of the concept of plurality? Are they just different or are they genuinely incompatible? In order to answer these questions, I will begin by engaging in a discussion of James Campbell's work in order to illustrate some essential characteristics of the history of pragmatism. Then, through the lens of A. C. Armstrong's work, I will trace the evolution of pragmatism. In the former project, I will address the future of pragmatism, whereas the latter will be devoted to an original interpretation of the history of pragmatism up through our own time.

[202] Cf. Bernstein 2006,
[203] Cf. Fodor 2004, p. 47.

3.1.1 Historical clarifications from the perspective of James Campbell

The development of pragmatism is historically inseparable from both outer catastrophes and inner dissonances. Therefore, any inconsistencies or confusion involving pragmatism can be traced back to obstacles both historical and theoretical. On one hand, I will attempt to bring clarity to the historical background of pragmatism, and on the other I will examine its theoretical foundation.

The development of Pragmatism can be traced to both the Great Depression (1929-1931) and the Second World War (1939-1945).[204] Although the mains doctrines of pragmatism had been well established before these days, the coherence of the ideas of pragmatism met a gap after these events.

It is needless to say that the horrors of these two events left an indelible mark on the American psyche. After peace had given way to war, pragmatists had to face the real world. At the same time, however, they had to maintain optimism. During a time of turbulence and danger, little attention could be devoted to intellectual activity, except in the sense of thinking about how to live in the fact of the absurdity of the world. Positive thinking might offer some relief, but it could not change the real situation. As a result, phenomenology and existentialism[205] were popular during this time period. Philosophers from these two traditions reflected on the conditions of the world and the concrete experience of human beings. They gave meaning to life and living and attributed the meaning of truth to feeling and perceptual experience. In fact, pragmatism and existentialism do share some historical roots,[206] and the former is also connected to phenomenology.[207] Indeed, such ideas had already been adopted by cognitive scientists for the purposes of understanding essential aspects of human cognition rather than merely rational or intelligent phenomena. Yet while cognitive pragmatism is

[204] Cf. Campbell 2011, p. 78. Campbell does not mention World War I (1914-1918), being a war in which America was not strongly involved. Although the principal doctrines of pragmatism had already been formulated by 1929, it underwent a reformulation afterwards. The newly generated ideas thus differ in significant ways from the classical ones.
[205] Cf. Anna-Teresa. Tymieniecka (ed.) 2009.
[206] Cf. Hook 1959.
[207] Cf. Rosenthal & Bourgeois 1980; Bourgeois & Rosenthal 1983; Wilshire 2000.

growing in influence, contemporary research lacks clarity. It is impossible to advance this growing trend without disturbing it.

In addition to external attack, pragmatism was interpreted and misinterpreted in many ways throughout its history. Campbell thus distinguishes between two 'pragmatic strains' in mainstream thought. One is rooted in the 'simple practicalism of the traditional American lifestyle,' and the other is the 'pragmatic strain in American society.'[208] The former is popularly admitted, that regards action is more important than thinking. That is to say, these practicalists and anti-intellectualists take speculative knowledge to be purely ornamental and thus 'useless,' and instead embrace only the value of praxis. In short, both *practical* and *pragmatic* approaches are extended but distinguished from the original ideas of pragmatism; the original ideas shaped human lives and societies.

As a result, there arose two important ideas under the name of pragmatism: One being the tension between action and thinking, and the other being the difference between practicalism and what I call 'pragmaticalism.' Though Campbell does not participate in the growing trend of pragmatism in cognitive science, his ideas are essential for embodied cognitive science. Upon reflection, it is not traditional pragmatism, but a derivative strain—named 'practicalism'—that has been invoked in the tenets of cognitive pragmatism (i.e. 4E cognition). It is pragmaticalists that advocate testifying to and exploring the personality and complexity of each cognitive agent and the importance of meaningful possible action. Individual experience and intellectual life are both underscored in the ideas of cognitive pragmatism. However, the fact is that these ideas do not belong to the orthodox tradition.

As a result, pragmatism is often regarded in terms of a larger 'pragmatic' vision in addition to that of 'pragmatist' that can be used to challenge new understandings of truth in order to better define cognitive abilities and various meanings. In addition to delineating the history of pragmatism, Campbell also explores its internal problems in light of its popularity and pluralistic nature. He points to two in particular:

[208] Cf. Campbell 2011, p. 69.

1) James's *Pragmatism* appeared toward the end of the academic debate over Pragmatism.

2) The Pragmatic movement was never particularly important in American philosophers' professionalized vision of themselves.[209]

Undoubtedly, James's famous lecture (1898) and book *Pragmatism* (1907) are the most important presentations of this idea. However, as Campbell explains, this book was a 'short-circuit' carried out for the purpose of encouraging discussion. Additionally, in his lecture James mentions that the notion of pragmatism is one that he borrowed from Peirce.

James and Peirce's relationship was not only complex; it was crucial for pragmatism's development. Without James's 'kidnapping' of Peirce's pragmatism, the school might not have become so popular; and without James's help, Peirce's life would have remained difficult. However, with respect to the theory of pragmatism, Peirce did not appreciate James' approach at all. Pragmatism maintained its influence on both the academic and lay worlds. The debates between James and Peirce also remain strong while influencing different followers of pragmatism.

Many appreciate pragmatism for its appeal to their common sense understanding. That is to say, pragmatism was taken more seriously by those who possessed a practical perspective. According to Campbell, for pragmatists and other philosophers, 'pragmatism was never the most influential philosophy in America, nor did it ever dominate the field of professional philosophy in America.'[210] In fact, the pragmatist perspective was adopted by many followers who had not devoted serious study to the school. (Mark Johnson is reprentative of this short). It is impossible to discuss pragmatism without being invoked by other schools, such as idealism and realism, which invoke rationalism as well. That is to say, cognitive pragmatism's anti-dualism is overly harsh. From Campbell's view, the general interest in pragmatism has been overstated, while the idea itself has been overlooked. For this reason, despite its

[209] Cf. Campbell 2007, p. 10.
[210] Cf. *Idem*, p. 10.

admitted technical and institutional advancements, pragmatism has never reached its full potential. Campbell writes:

> Philosophy's striving after a professionalized existence has continued to damage its roots in the life of the broader society, roots from which any institutionalized social practice must draw its challenges and sustenance. It is hard to imagine a worse situation after one hundred years of *Pragmatism*.[211]

Which essential ideas might be discovered through the adoption of a pragmatist vantage point? What Campbell sees is that what pragmatism indeed achieved was 'a brief pass through the center of American philosophical discussion in the decade between 1900-1910, during the decline of religiously-oriented Idealism and the rise of professionally-oriented Realism,' and 'pragmatism might have been successful in its attempt to combine the goods of rationalism and idealism.'[212] It seems that the classical pragmatists had regarded pragmatism as a radical way of engaging in philosophy. Besides this philosophical approach, psychology was also illuminated by the pragmatists' ideas. They understood this method as a combination of the intellectual and conceptual perspective of professional work and the common perspective of human experience and life. In other words, we cannot simply consider the essence of either philosophy or science without also taking into consideration ourselves, our expectations, and the practicability of the endeavor.

At the beginning of the twentieth century, pragmatists would have had high expectations for realism, given the decline of idealism. However, they did not fully embrace realism. Instead, they introduced a new paradigm similar to realism in order to further clarify 'the nature of our knowledge of the elusive real.'[213] Therefore, the core of pragmatism is epistemology. It inquiries into truth, but defines knowledge in as obvious a way as possible. This epistemological approach is comparable to that of

[211] Cf. *Idem*, p. 11.
[212] Cf. *Idem*, p. 10.
[213] Cf. *Idem*, p. 11.

cognitive science, because cognitive pragmatism explains why the contents of knowledge are recognizable. They indeed perform an observational study of human experience in order to catch a glimpse of the contents of the mind, but not the components of the brain and the indirect knowledge.

In addition to elucidating pragmatism, Campbell exposes inconsistencies between different pragmatists—one of the most crucial being that between Peirce and James. Although Peirce rejected James's pragmatism, the latter's contributions should not be overlooked. Campbell outlines three of James's contributions in particular. First of all, James's understanding of human nature is such that he 'grounds the activities of mind in the problems of living.' This position is able to connect truth to other human values. Secondly, James' pragmatism is 'forward-looking rather than backward-looking' relative to Peirce's pragmatism. That is to say, although the pragmatisms of James and Peirce are nominally identical, the tradition itself is rich and varied, and hence its ideas lend themselves easily to controversy and debate. Thirdly and finally, James's emphasis is placed on 'the importance of the practical over the purely intellectual.'[214]

As a result, cognitive pragmatists should take careful note of these differences within pragmatism. In addition to similarities, differences should also be treated with care. One could say that the relationship between Peirce and James is comparable to that of Plato and Aristotle. The former is concerned with the purest form of truth, whereas the latter's feet are planted firmly on the ground. 'James suggests pragmatism as a possible answer to our inconsistent wants,' and James's regards pragmatism as 'mediator and reconciler.'[215] Further differences between Peirce and James are well documented by Campbell. The aim of Peirce's pragmatism was to explain the tension between what Kant called the *praktisch* and the *pragmatisch*, while that of James was designed to explain the Greek word πράγμα ('*pragma*') by way of reference to 'action.'[216]

As a result, those ideas—e.g. practice, action, praticalism, pragmaticalism,

[214] Cf. Campbell 2011, p. 74.
[215] Cf. Campbell 2007, p. 11.
[216] Cf. Campbell 2011, pp. 70-71.

experimentalism, pragmatism, and even pragmaticism—are all invoked in the discussion of pragmatism, while the tensions between them make up the most important ideas exposed and disseminated by the pragmatists. Therefore, cognitive pragmatists should carefully study these tensions instead of focusing only on pragmatism's more obviously admirable concepts.

From Campbell's history of pragmatism one can glean two crucial facts: First, in addition to its renowned principles and wisdom, there are many other important topics for students of pragmatism to consider from the pragmatist's point of view—topics such as realism, idealism, and rationalism. Second, pragmatism is not in fact the fundamental tradition of American philosophy it is commonly thought to be, and there exist many other important ideas that have been overlooked in light of the historically suspect legacy of pragmatism. By taking these two revised impressions into consideration, we will gain a better appreciation for the evolution of pragmatism. Perhaps pragmatism in part caused so much confusion in cognitive science because the movement itself was confused in its early years. After that, I will examine the evolution of pragmatism through a study of Armstrong's ideas.

3.1.2 Historical clarifications from pragmatism's heyday—the views of A. C. Armstrong

From A. C. Armstrong's perspective, pragmatism provokes much confusion. For instance, pragmatism is involved in many discussions and debates that lack a clear-cut conclusion. Five principal lines of the progress are crystalized.[217] According to Armstrong, among Anglo-American pragmatists there is a consensus on these five features.

First, pragmatism is a methodological doctrine, whose methodology has been used in the natural sciences and was subsequently introduced into the domain of philosophy by the classical pragmatists. In this sense, the 'pragmatic method' (for lay people) is a

[217] Cf. Armstrong 1908, pp. 645-650.

revival of the ‘method of science’ (for scientists) as well as the ‘scientific method.’ That is to say, from the perspective of pragmatists, as excellent philosophers and scientists, both the knowledge and methods of the natural sciences were introduced to other areas of research (such as the human sciences). Following this regenerated view of science, a beneficial methodology is incorporated into both science and philosophy. It is believed not only to apply to thought alone, but also ‘brings knowledge into touch with life and promotes action as well as cognitive work.’ Therefore, what pragmatists are advocating is not metaphysical in nature, but rather includes different varieties of philosophical conviction. Pragmatism thus may not meet the end of knowledge, but rather some ‘conclusions concerning the world and human life.’

Second, pragmatists subscribe to neither individualism nor subjectivism. It takes account of the universal and objective factors in thought and life. The difference between individualism and Schiller’s theory of humanism on the one hand, and subjectivism and James’ theory of truth on the other should be clarified. According to Armstrong, ‘Schiller dwells upon the common or social moment in cognition’ whereas ‘James is more emphatic concerning the relation of truth and knowledge to *reality*.’ Pragmatists explore the nature of human being and the world, and their philosophy is explored in order to showcase these complex relations. Such complex and inseparable relations between humanity and the world, truth and reality should never be explained in strictly personal or subjective terms. Different views may be compatible, but one feature of pragmatism is its attempt to attain a universal and objective view of the world.

Third, the relation between pragmatism and humanism is crucial. Both Schiller and James take humanism to be an essential feature of pragmatism. It is humanism rather than pragmatism that promotes the psychological explanation of cognitive processes led by self-interest and purpose. In Schiller’s view, ‘thought is everywhere purposive and personal—its depersonalization forms the primary error of the non-pragmatic schools.’ However, according to Armstrong, the relation between pragmatism and humanism is tenuous: ‘The narrower pragmatic method and the broader methodology

of humanism are not in all respects identical.'[218] As a result, pragmatism seems to fall under the broader umbrella of humanism.

Fourth, the pragmatic method is concerned with various definitions of meaning. There are three available approaches. First of all, 'the pragmatic method varies with its application to different subjects.' That is to say, cognitive acts are generated directly for specific purposes. Furthermore, cognition is capable of producing meaning in different ways. Here, Dewey's approach is invoked to explain the practical aspect of cognition, which can be defined either as an acquired object, or a justified belief. Secondly, pragmatism concerns judgments of value, and further involves evaluating thought from different perspectives. However, truth may not be simply reduced to 'the expedient, the useful, or the good,' and this is one reason why many pragmatists have had to differentiate their own ideas from certain misconceptions of pragmatism. Finally, the pragmatic method concerns concrete subject matters and yet applies to transcendent questions. Views of the latter sort may not be definitively justified by experience, but they should nevertheless be evolutionally reorganized.

Fifth and finally, the relation between pragmatism and metaphysics is crucial, considering that pragmatism is infused with metaphysical assumptions. The *noetical* view of James and Schiller explains notions of freedom, pluralism, personality and theism; it seems to be a pragmatist conception of mental life. This noetic intuition is indeed the root of natural life as well as the eventual nature of intellectual life. Dewey is even more advanced, explaining the personal factor at play in the constitution of knowledge and reality. This epistemological approach to pragmatism is also a remarkable feature.

For Armstrong, the evolution of pragmatism is differentiated from other relevant ideas and varying opinions due to a number of factors. As a philosophical school, pragmatism was established as a method, grew as an epistemology, and would finally come to embrace metaphysics. However, the pragmatist view of metaphysics is quite advanced, for it concerns both the material world and mental life in a *non-dualist* way.

[218] Cf. Armstrong 1908, p. 647.

That is to say, pragmatists define human issues using a rigorous scientific methodology in order to make them as clear as possible. That is the way that Peirce divided it into three grades of 'clearness,'[219] whose meaning yield the clarification of clarity. This notion is very important for Peirce, and it is the central idea of his pragmatism. Clearness is of a higher grade than 'distinctness,' in order to clarify and recognize things. In addition to making difference and showing the distinction, the notion of distinctness is the core idea of James's pragmatism.[220]

Similar to the mind-body problem, pragmatists consider both mental and physical perspectives to be means of obtaining real knowledge. In such a way, what might be revealed by pragmatists in addition to furthering our knowledge of science, is a realistic understanding of nature that is as reliable and recognizable as possible. This reliable knowledge of nature itself leads to a more critical and comprehensive approach to science. Besides, both reality and reliability are justified by human rationality and also limited by it. That is why pragmatists would not define final and fundamental knowledge.

Through Armstrong's lens, this evolutionary trajectory of pragmatism is destined for acceptance in Britain and the United States, though it has not been fully accepted as a legitimate approach on the continent. Furthermore, different attitudes regarding the formulation of certain knowledge are also an important factor in the evolution of pragmatism. Distinct from the German Idealism of Kant and Hegel that pragmatism draws some of its influences from, pragmatism made a voluntary decision to join the mainstream of British empiricism, and modified it with the revised ideas taken from both idealism and rationalism. It is all the more important for cognitive scientists to study this history of pragmatism. It seems that the relation between pragmatism and science may be much deeper through lenses of cognitive scientists, but also more complicated than what has been represented by the cognitive pragmatists. Moreover, such newly generated schools of pragmatism in the analytic philosophy rejected by Mark Johnson and Jerry Fodor, such as logical positivism and logical behaviorism, do

[219] Cf. Peirce, 1878.
[220] Cf. James, 1907.

not indeed engaged much to represent the ideas of pragmatism, but the classical way of thinking about rationality and humanity. And in addition, psychology, phenomenology, externalism, and even structuralism might probably be involved in the tradition of the pragmatist way of philosophizing. Therefore, the movement of embodied cognitive science may not consist of a singular growing trend of mere pragmatism, but it is rather more comparable to evolutionary progress, its complex relations to other philosophical schools.

The relationship between pragmatism and humanism is complex, and they form the most prominent cleavage within the school. The humanist and pragmatist approaches—typically attributed to Schiller and James, respectively—are very different from the radically metaphysical approach advocated by Peirce. In fact, Armstrong does not address Peirce's ideas in the evolution of pragmatism; he merely mentions those of Schiller, James, and Dewey. It is perhaps humanism that appeals and contributes to many misconceptions of pragmatism with its various simplistic points of view that are involved in the skeptical ideas reinterpreted by individualism, subjectivism, solipsism, and utilitarianism. However, pragmatism is indeed more concerned with the methodology, epistemology, and the metaphysical scale of the world in its search for the truth. Pragmatists challenge the notion of an 'ultimate question' with a universal and objective perspective from their intuitive points of view, but they reject the prospect of an ultimate and definitive answer.

Consequently, it seems that Armstrong does not take pragmatism to be a radical method of acquiring truth. Through his lens, pragmatism is an important philosophical school with significant implications for the future, and it is embodied in many different trajectories.

3.2 Some particular aspects of interpreting classical pragmatism

Following this historical examination of pragmatism, both its fundamental tenets

and evolutionary trajectory have now been clarified. After examining the important perspectives of Campbell and Armstrong, we can go deeper to examine the ideas of pragmatism in detail and with respect to different systems. I will introduce three systemic categorizations of pragmatist doctrines as promulgated by James Campbell in 2011, Arthur O. Lovejoy in 1908, and J. E. Boodin in 1909.

3.2.1 James Campbell's approach

In addition to Campbell's elaboration on the history of pragmatism, we may go further through his interpretation of its theory. Campbell characterizes four themes as well as in addition to providing a broader pragmatic vision.[221]

To begin, pragmatism is the attempt to understand and explain 'our *natural place*.' In this sense, we are cognitive agents as well as liberal experimenters. This view is akin to the post-Darwinian exploration of the embodied human organism. We thus actually need to understand the world in order to make it meaningful for us. In addition, we need to interact with and challenge the world, keeping our conscious experience under control and in equilibrium with other creatures even in the changing and unfamiliar environment.

Second, pragmatism is a series of hypotheses that are applied to and continuously verified by '*experience*.' Taking into account both rational and empirical aspects of human cognition, pragmatism promotes a practical approach based on considerations of a practice's success. This is the way to realize the content of conceivability into a recognizable result by way of practice. In such a way, we need to draw meaning from our previous experience in order to prepare for the future experiences that follow it. Experience is more reliable than dogmatic principle by itself. It is situated within urgency of the present moment. Moreover, it is not enough to simply conceive and project, because it is not always the conceivable or projectable situation that we will face. Sometimes, the real situation is the one that we do not want to face; it is the very

[221] Cf. Campbell 2011, pp. 69-80.

thing we hope not to be true, but is. Therefore, dogmas and wisdoms should be taken as legacies, but might be re-conceptualized when also considering values and goods that can be seen.

Third, the central theme of pragmatism is '*possibility*.' Pragmatism leaves many questions open. This openness can be a contentious trend that links our past and future, and also new generations to ourselves, and other animate and inanimate entities. This spectrum of possibility is meaningful from a spatial-temporal perspective. It is possible because it is capable of being conscious and also of being practical. In fact, pragmatism is a fundamental approach of attaining truth. However, the path to truth does not terminate in a definitive end. In such a way, our purpose may not only be to see the harvest become as large as possible; we also project the possibility of a large harvest onto the following years. Pragmatism is such a way of thinking. It concerns knowledge that is not only about the articulable truth, but also the practical aspects realistically connected with any possibilities in order to improve and motivate life at a maximum.

Fourth, another central theme of pragmatism is '*community*.' Pragmatism is projected as the philosophy of a harmonious community. It means that when we exist as a group, and that in addition to a goal and a means, we also need an intellectual tradition; that is, a basis of performing tacit agreements. Therefore, a combination of metaphysical, scientific, and social cooperative work is embodied in the notion of pragmatism. In this community, we share both our ideas and experiences, and our goal is to develop together in a more effective, sustainable, and harmonious manner.

Campbell is an excellent historian of pragmatism, and thankfully shared his expertise on classical pragmatism.[222] It is a belief that there is an evident convergence between the brand of pragmatism generated from within the school itself, and a rival trend of cognitive pragmatism in the domain of cognitive science. The challenge lies in how to strengthen this point of convergence.

It appears that Campbell himself is not a neopragmatist, but rather a neoclassical one. As Johnson has noted, cognitive pragmatism rejects neopragmatism, which is

[222] E.g., Peirce, James, Dewey and Mead etc.

rooted in analytic pragmatism. Campbell's approach is not among those invoked in Johnson's critique. However, Johnson has yet to mention the work of neoclassical pragmatists. Since Johnson endorses the classical ideas of James and Dewey, his approach to cognitive pragmatism can be further defined as 'cognitive neoclassical pragmatism.' Many of the neopragmatists' ideas find themselves challenged by neoclassical pragmatists like Susan Haack and James Campbell. Within the school of pragmatism, Rorty is just the most unappreciated proponent of the sort of pragmatist rejected by Susan. Besides, both the ideas of Richard Rorty and Daniel Dennett are singled out in Jerry Fodor's critique of pragmatism in cognitive science. As a result, neoclassical pragmatism and neopragmatism involve different and controversial reinterpretations of the ideas of classical pragmatism. It is indeed a 'cognitive neoclassical pragmatism' that cognitive pragmatists should be engaged in, while taking care not to overlook its differences to neopragmatism. In short, neopragmatism and neoclassical pragmatism are radically different variations on an old idea. According to the latter, neopragmatism misrepresents the essence of classical pragmatism, and that is why a revisitation of classical thought is necessary. It is also why I pass over neopragmatism in this dissertation. Instead, my engagement with cognitive science is derived from a neoclassical perspective in order to represent the initial ideas of pragmatists. I am indeed trying to help move us past the muddled and confused arguments being put forth by only too many of today's cognitive scientists.

After this introduction of a contemporary generation of classical pragmatists through the lens of neoclassical pragmatism, I will proceed to examine the classical ideas of pragmatism during its own epoch.

It can be found that Arthur O. Lovejoy's famous classification of pragmatism's various doctrines has been underscored by a few cognitive scientists, such as Jean-Michel Roy[223] and Pierre Steiner[224] indeed, these two thinkers can be said to have virtually introduced Lovejoy's contribution to cognitive pragmatism. Moreover, it can be seen that this 'Lovejoyan classification' is also mentioned in the works of James

[223] Cf. Roy 2014.
[224] Cf. Steiner 2013.

Campbell,[225] J. E. Boodin,[226] as well as many other historical accounts of pragmatism. The fact is that Loyejoyan clarification of pragmatism is brilliant in both cognitive science and pragmatism, but his work lack of critiques. Therefore I take Lovejoy's pragmatism as another typical example in order to illustrate and further examine the nature of pragmatism.

3.2.2 Arthur O. Lovejoy's approach

'Pragmatist doctrines' are not equivalent to 'pragmatic theories.' It is the boundaries of the former that are delineated by Arthur O. Lovejoy, while he regards the latter as an 'unassorted commingling of doctrinal sheep and doctrinal goats in the ample fold of pragmatic theory.' In fact, pragmatic theory has been co-opted or misinterpreted by careless people in a way designed to represent their own ideas and interests in addition as involved the pragmatist development. This makes pragmatism popular, but also sparks many debates and misunderstandings. In an attempt to attach the term to some single and stable meaning, Lovejoy categorizes pragmatism into four types of theory: theories of meaning, truth, knowledge, and ontology. In this order, I will abstract some of these ideas that are arranged by Lovejoy in his system; the original explanations of these 'four topics' can be found in his work.[227]

Topic One: The pragmatist theories of meaning

The meaning theory of pragmatism is concerned three doctrines:

I. The 'meaning' of any judgment consists wholly in the future consequences that it predicts, whether it is believed or not.

II. The meaning of any judgment consists in the future of the consequences of

[225] Cf. Campbell 2003.
[226] Cf. Boodin 1909.
[227] Cf. Lovejoy Jan. 2, 1908, pp. 5-12; Jan. 1, 1908, pp. 29-39.

believing it.

III. The meaning of any idea or judgment always consists in part in the apprehension of the relation of some object to a conscious purpose.

Any definition of meaning will be engaged in pragmatism if it performs an alternative from the three.

Topic Two: The pragmatist theories of truth

The truth theory of pragmatism relates to epistemology, as they both concern themselves with the nature of truth:

The truth of a judgment 'consists in' the complete realization of the experience (or series of experiences) to which the judgment had antecedently pointed; propositions are not, but only *become*, true.

Topic Three: The pragmatist theories of knowledge

Undoubtedly, pragmatism is principally concerned with clarifying knowledge, and there are eight domains in which pragmatists engage with this question:

I. Those propositions are true which in past experience have had their predictions realized; and there is no other criterion of the truth of a judgment.

II. Those propositions are true which have in past experience proven biologically serviceable to those who have lived by them; and this 'livableness' is the ultimate criterion of the truth of a judgment.

III. All apprehension of truth is a species of 'satisfaction'; the true judgment meets some need, and all transition from doubt to conviction is a passage from a state of at least partial dissatisfaction to a state of relative satisfaction and harmony.

IV. The criterion of the truth of a judgment is its satisfactoriness as such; satisfaction is 'many dimensional,' but all the dimensions are of commensurable epistemological values, and the bulk of satisfaction in a judgment is the mark of its validity.

V. The criterion of the truth of a judgment is the degree to which it meets the 'theoretic' demands of our nature; these demands are special and distinctive, but their realization is nonetheless a kind of 'satisfaction.'

VI. The sole criterion of the truth of a judgment is its practical serviceableness as a postulate; there is no general truth except postulated truth, resulting from some motivated determination of the will; 'necessary' truths do not exist.

VII. There are some necessary truths; but these are neither many nor practically adequate; and beyond them the resort to postulates is legitimate, as well as necessary.

VIII. Among the postulates which it is legitimate to take as the equivalent of truth, those which subserve the activities and enrich the content of the moral, aesthetic, and religious life have a coordinate place with those that are presupposed by common sense and physical science as the basis of the activities of the physical life.

Topic Four: The pragmatist theories of ontology

Temporal becoming is a fundamental character of reality; in this becoming the processes of consciousness have an essential and creative role to play. The future is strictly non-real and its character is partly indeterminate and dependent upon movements of consciousness, the nature and direction of which can be wholly known only at the moments in which they become real in experience.

Although these thirteen doctrines share the same name, they are indeed different and should thus be clearly distinguished. In fact, these thirteen separate pragmatisms are logically independent rather than merely discriminable. That is to say, some pragmatisms are interchangeable, and some others can be challenged by themselves. For in the movement of pragmatism, certain ideas are developed linearly and coherently, while certain other ideas are compared and developed through debate. As a result, pragmatism contains multiple meanings, partly explicit, partly implicit, and the essence of the idea is to ensure both reliable and recognizable approaches in the method we use to arrive at truth. This is indeed the most essential feature of pragmatism; pragmatism

is a rich patchwork doctrine composed of a multitude of ideas of varying levels of satisfaction and clarity.

This does not constitute a final inventory of pragmatism because Lovejoy does not close the door definitively. Instead, this typology aims to distribute legitimate doctrines but also to render ideas as simple and as fixed as possible. In examining Lovejoy's list, the general topics covered in pragmatist investigations are clear. However, the challenge is that, based on this list, few could *fail* to find themselves classified as pragmatists. This is not necessarily an issue, but it would seem to indicate that the pragmatist ambition is too oversized here. Even after lending clarity to the most complete elements of pragmatism, we have yet to arrive at a more neutrally defined version of pragmatism.

Lovejoy tells us that pragmatism was born in 1898 in the ideas of James. However, this assumption would be incorrect, given that it once again overlooks the ideas of Peirce, who preceded James by at least twenty years. Although Lovejoy does not completely overlook Peirce's approach itself, he clearly takes James's pragmatism to be the dominant theory. It is likely that Lovejoy focuses his analysis on James's pragmatism because that is his expertise.[228] The work of Ralph Barton Perry,[229] which Lovejoy advocates, is similarly focused on James.[230] Their approaches are similar in that they are both extensions of James's ideas. Indeed, these thirteen doctrines of pragmatism could be considered offshoots of Jamesian pragmatism in particular. Lovejoy posits his own approach, which is a less radical pragmatism and epistemological theory. More, he distinguishes the theory of meaning from the theory of truth.

As mentioned, this typology of the thirteen variants of pragmatism has enjoyed significant popularity. As mentioned above, the work of Lovejoy as well as his comprehensive presentation of pragmatism is underlined by Jean-Michel Roy and Pierre Steiner. The former believes that pragmatism should be critiqued, and the latter

[228] Cf. Lovejoy 1936.
[229] Cf. Perry 1907.
[230] Cf. Perry 1948.

wishes to see it developed further. In addition, Roy and Steiner have also invoked the controversial debate on RTM. Whereas Roy is a balanced defender of representationalism who reinterprets mental representation from within the Brentanian tradition, Steiner is a radical nonrepresentationalist who strongly rejects the notion from a pragmatist perspective. Distinct from the Johnson-Fodor debate, the Roy-Steiner debate regards the pragmatist tradition in a proper sense. They are more deeply rooted in pragmatism, especially their examination of the ideas taken from its classical period. From this advanced cognitive view of pragmatism, 'what pragmatism is' will be more evident. However, what we want is also to see pragmatism from a clearer perspective. Therefore, the further question will be asked: What is the essence of pragmatism? For this, J. E. Boodin criticized Lovejoy's work. He writes:

> Lovejoy's 'Thirteen Pragmatisms' is a measly allowance, when you consider the variety of human nature and the number of possible applications of the pragmatic method. But this is a good illustration alike of the ungenerous temper of the 'intellectualist' and of his unscrupulousness in creating a prejudice against his opponent.[231]

Therefore, in addition to the ideas of Lovejoy and his typology of the possible variants of pragmatism, I will move forward to explore another clarification of 'what pragmatism is' and 'what pragmatism is not' through Boodin's lens. I will now use Boodin's pointed analysis as a perspective from which the confusion and misconceptions generated by pragmatism can be better understood.

3.2.3 J. E. Boodin's approach

J. E. Boodin argues that the boundary between 'what pragmatism is' and 'what pragmatism is not' remains unclear. In making his case, Boodin brings many important

[231] Cf. Boodin 1909, p. 630, footnote.

ideas from both sides to the table.[232] The views of both pragmatism's critics and proponents are invoked in many traditional schools of epistemology and metaphysics such as idealism and realism, spiritualism and materialism, empiricism and apriorism. However, those ideas have not been sufficiently represented in the movement of cognitive pragmatism. Despite this diversity, Boodin is able to delineate the boundaries of pragmatism. I summarize his ideas below:

What Pragmatism is:

I. The application of the ordinary scientific method of testing natural hypotheses to philosophical hypotheses as well.

II. The 'practical' testing of a doctrine in science.

III. A theory of truth committed to instrumentalism regarding concepts.

IV. A realistic theory of truth that intends a world beyond our finite cognitive capabilities.[233]

V. Equally non-committal to empiricism and apriorism, it is a theory of the *nature* of truth, not of the origin of its categories or postulates.

VI. As a theory of truth it concerns the categories that might originate from use, inheritance, natural selection, divine implanting, or mystical intuition.

VII. Pragmatism is a priori, eternalism may be the outcome of dynamism as well.

What Pragmatism not is:

I. Something that implies that the true and the useful always coincide.

II. Equivalent to humanism.

III. A doctrine whose assumptions would not imply the statement that the nature of reality is altered by the act of knowing it, and that therefore we are limited to the

[232] Cf. *Idem*, pp. 627-635.
[233] Pragmatism is a theory of truth that allows for the possibility that there is a world beyond our finite cognitive capabilities.

charmed circle of experience.

IV. A doctrine that implies that, *a priori*, things are not what they seem.

V. A truth theory intended solely for satisfying certain demands extraneous to itself—for example, the biological end of adjustment.

VI. A mere variation on empiricism, as opposed to rationalism and *a priorism*.

Under Boodin's interpretation, the central theme of pragmatism is truth. The test of truth should be performed in a practical way in order to perceive truth in a teleological as well as a viable sense. That is to say, truth is not an extraneous tool. Though truth might not be judged by its mere success, it should nevertheless serve its function. The general pragmatist point of view of Boodin appears to differ from that of Dewey's instrumentalism. Dewey takes the nature of truth as playing a functional role not unlike a bridge.[234] In comparison, Boodin may be a less radical instrumentalist, and that is because he is also concerned with the idea of function. For instance, he does not take 'correct' and 'false' to be opposites in the debate. The latter may be 'temporarily successful,' while the former is 'imitative of its object to a certain extent.' This tension is similar to that of belief and doubt in Peirce's usage.[235] For Boodin, truth as a matter of fact must always be imitative of its object to a certain extent. He asserts:

> Truth … can never be conventional in its content, however conventional our symbols may be. In the case of knowing a system of truth it must be imitative of the content of the object; in the case of thing-objects it must be imitative of certain qualities of the object. Inasmuch as our finite truth is not exhaustive, but always implies a more, a larger constitution to be investigated, it must be regarded, in so far as instrumental to its own completion, a means to its own more comprehensive end.[236]

Cognition will nevertheless meet the limit of its capabilities and we will eventually meet the limit of our cognitive capabilities. What pragmatism attempts to presume

[234] Cf, Dewey 1905.
[235] Cf. Peirce, 1905.
[236] Cf. Boodin 1909, p. 631-632.

beforehand is the method by which the possible cognitive activities are performed. It seems that pragmatists do not define truth ontologically, but rather discover how to explain the meaning of the truth from a viable epistemological point of view. Therefore, epistemologically, what is defined in this process is the meaning of truth. That is to say, it is the meaning of truth that is assumed and verified by and embodied in experience. Thus, the procedure for discovering truth leads us to adopt the realistic perspective of the experience through an absolute unity of thought rather than an ultimate determination. What will be seen and justified is not truth itself, but those perceivable and justifiable peripheral conditions capable of making the internal truth become externally meaningful. Boodin further asserts:

> Pragmatism neither assumes at the outset that the object in order to make any difference to the cognitive purpose must itself be experience, nor does it assume a priori that reality cannot possibly be what it is known as being, because external to experience. What reality is, what differences it can make, is precisely to be found out. The constitution of the universe is idealistic or materialistic, monistic or pluralistic, according as we must take it, as the outcome of the pragmatic test. But we must all start with the same criterion, else there can be no discussion of truth.[237]

Boodin likely follows Peirce's diversion of 'rational cognition' and 'rational purpose,' considering that he also distinguishes between different appearances assumed under the purposeful projection from the internal object of cognition as well as the initial curiosity of thinking. Therefore there is no 'definite truth,' but only a 'satisfactory truth.' In such a way, the meaning of truth is involved in an infinite inquiry, and this process is motivated by critiques known as 'pragmatic criterion.' Boodin thus defines the meaning of truth in a recognizable form. He explains:

> Truth is systematic meaning, systematic experience about the object. This meaning, in case

[237] Cf. *Idem*, p. 632.

> we are striving to know other experience, must be identical with the content of the object; but the qualities of an object which is not experience may become content for us through perception. In any case truth is our systematic *percipi*, as it is revealed in our specific procedure, whatever the metaphysical character of the object may turn out to be. We have no right to take for granted that what is to be known is more content, independent of our knowing, with which our preformed guess can be accidentally identical and so be called true in advance of verification.[238]

I am admittedly pursuing my own train of thought here, and it is worth noting that Peirce's approach is described in accordance with my own interpretation. I find that his position is similar to that of Boodin, especially with respect to his philosophy of mind and knowledge. There are certain such notions, such as the inquiring forms—'guess,' 'find,' 'seek;' the objects of inquiry—'content' and 'clearness;' the factors that blind us during the process of inquiry—'accident' and 'chance.' Such conceptual events are difficult to control, which is why I speak of the knowledge of other minds in terms of the game of 'hide-and-seek.' The contents of other minds are not only 'invisible' from our 'blindfolded' perspective, but they may in addition be intentionally 'hidden' from us. Because of this it is impossible to 'see' other minds on a routine basis. However, it is still possible to glimpse its essential hiddenness by chance. This chance glimpse might not be a matter of accident; it would be possible to prepare for this encounter. 'Habit' and 'convention' are shorthand for truth. This is the so-called economic principle also advocated by Boodin, which we utilize in this projection to explain the hiding players' requisite deceptiveness, which I call 'trickiness.'

As a result, the verification of truth should be made to recognize its meaning and its realization. That is to say, from a pragmatist point of view, truth is a realized fact. According to Boodin, knowledge is a way of trying itself out. Because of our finitude and the complexity of unfolding reality, the certainty of knowledge can only be decided by our empirical performance. That is to say, empirical knowledge is a reliable form

[238] Cf. *Idem*, pp. 632-633.

that also concerns itself with theoretical knowledge—knowledge which, for pragmatists, need not *definitively* be 'true.' Otherwise, empirical knowledge must be arranged in a determinate form, because it acts as a form of direct knowledge used to resolve our problems or sate our curiosity, and allow us to realize our cognitive abilities.

But perhaps pragmatism has been confused with epistemological issues that are more or less interrupted by considerations of the certainty and propriety of the knowledge. Moreover, the distinction between direct and indirect knowledge may be a different case; one that is not only a dichotomy, but concerns the way in which knowledge is performed. Besides, it concerns our examination of inner knowledge. For us, knowledge is that which is intuitively contained in the mind, and suitably performed with the hand. As a form of practical knowledge adapted for communication within a special circle, it would be difficult to speculatively express this type of traditional and inherent knowledge.[239] That is to say, if the tradition is cut, the art will be lost. Therefore, in a community cognitive agreement needs also to be confirmed with complete satisfaction, and in a deeper sense. James Campbell may also agree on this point. However, the most challenging difficulty lay in determining how to define the boundary of separating the schools of pragmatism. This is indeed what I am trying to see, through Boodin's lens, in the domain of cognitive science. In other words, it is not difficult to diagnose the cold, but difficult to cure it (this seems to me to be the philosophical core of Wittgenstein).

Now taking an epistemological dimension, the discussion on pragmatism is invoked with many obscurities. In such a way, the theory lacks criteria. The conduct of thought does not always agree with the ideal of the thinking itself. Therefore, the pragmatic criterion is an epistemological ideal—it can ultimately make the knowledge of truth possible. In addition, based on cumulative experience, this knowledge can be advanced and modified. For this reason, pragmatism ought to be regarded as a fundamentally scientific philosophy.

Boodin asserts that 'pragmatism is not new at all, but as old as science.'

[239] We may know this type of knowledge from works of anthropology and historical works (for example, the portrait artist of the Buddhist story).

Pragmatism is a realistic theory of truth, while its reality nevertheless originated in the science tasked with discovering the nature of the world. That is to say, if science is the original version of the world, pragmatism represents a scientific version as well as reliable and recognizable knowledge of the world that is based on and moves beyond its original version.

According to Boodin, pragmatism gives 'peace on earth, good will to men'; it is a blissful consummation. In contrast, Jerry Fodor identifies a very different justification of pragmatism. For Fodor, pragmatism may very well be the worst theory in the world. But I submit that Fodor's poor impression of pragmatism would likely require revision if he would only undertake an attempt to know pragmatism in more detail. In pragmatism, there exists many ideas which might be introduced for the purpose of propagating the representational theory of mind and indeed criticize 'concept pragmatism.' Based on Boodin's understanding, it seems that Fodor's critique of *concept pragmatism* is also one important objective target of the pragmatic criterion. That is to say, pragmatists themselves are also concerning the misusing of concepts. Boodin asserts:

> While it is a mere circle to say that we can know reality only as it appears in cognitive experience, or for what it is known as, it is a gratuitous assumption to insist that what reality is known as, is contrary to what reality is, that the weights and distances and masses of things exist only as we humans take account of them. When we take account of them they have meaning for us, but our taking account of the qualities of things at all is generally forced upon us by their existence, which we must meet in order properly to adjust ourselves.[240]

As a result, concept pragmatism is perhaps an extended view from pragmatism, but it misrepresents the original. Boodin might not agree with the popular view that an 'a priori assumption about the universe is anything but pragmatic.' Truth is probably useful; certain truths can be recognized and controlled in certain routines. However, the

[240] Cf. *Idem*, p. 632.

way towards truth should not be only performed usefully and purposely; truth is simply of a purely lofty and intangible nature. Boodin thus distinguishes two kinds of investigation: one is truth investigation, and the other is material investigation. Although the utilitarian motive has been an important part of the investigation of truth, the investigation of mere purity, such as clarity and completion (roundness/fullness), is indeed the most exciting and admirable ideal of philosophers. For Boodin, it is not the usefulness of research that makes the discovery true.

However, we also have to accept that usefulness is important independent of truth. Therefore, truth may be useful as a conclusion as well as a provisional truth, but it is also for the pragmatist a type of epistemological criterion. In addition to this epistemological basis for truth, Boodin underscores the 'procedure' of experience. In fact, it is the realization process of truth that acts as the meaningful and recognizable approach to meet it. As a result, first of all, 'reality must pass through human nature to be known'. It is nevertheless important to invoke both self-satisfaction and self-control in understanding the realistic aspect of human experience. Finally, the truth will be clearly representable in addition to other external verifications and justifications. In this way, a hypothesis may come true if and only if it is capable of performing truthiness here, now and also in further experience, with nothing essentially connected with the 'tallying with the constitution of the object aimed at.'

In addition to a general advanced understanding from the perspective of pragmatist epistemology, a similar point of view can also be found in Boodin's pragmatism that sheds light on the concept of embodied cognitive science. He argues that no radical gap exists between the cognition of humans and that of other animals. Boodin writes:

> It matters not what sort of finite being tries to arrive at truth, whether man, baboon, or angel, the test of truth, so far as we can see, would be the same.
>
> May there not be cognitive beings superior to us humans? Or are the humanists absolutely convinced that we humans are the only cognitive beings in the universe? That certainly is no part of the pragmatic theory of truth; but, even if true, it is not being human that makes a

proposition true, but its termination in the intended facts.[241]

Pragmatists do not generally promote 'propositional knowledge,' but rather 'practical knowledge' as a more universal and reliable way to realize the meaning of truth—and not only mere truth. Therefore, supposition, proposition, and intention are all involved in the cognitive process of realizing truth beforehand, while a pragmatist will explain their contents in an observational manner in order to obtain 'perceptual knowledge' in addition to 'speculative knowledge.' Therefore, what pragmatists regard as a hypothesis constitutes a reflective and practical combination of inquiry. That is to say, we adopt a scientific approach in order to demonstrate our cognitive experience on the one hand, and on the other hand, seek out our ideal notion of truth by means of intuition. A satisfactory truth justification can be seen when the inquiry has been advanced—in other words, in our having realized truth inquiry. This idea, known as the pragmatically persisting concept, seems to follow Fodor's critique, but the crux is that the ideas have been realized. From a pragmatist view, the persisting state is not essential, but the realizability and any other possibilities involved in the positive realizable tendency is the core of the idea. It can be seen that, according to the explanation of the pragmatist, the meaning of truth is embodied in experience—this experience is rich and complex and it may not be understood solely in an isolated coherent sense. That is to say, the interpretations of actions in segments is not the proper way to grasp the embodied richness of experience.

It is always a narrow method that is performed in order to enhance and approach a clearer understanding of pragmatism in a way that prioritizes clarity over volume of information. Therefore, we might not present the history or theory of pragmatism in a complete sense, but rather in a continuous way. That is to say, for every step taken, we will not hesitate in making a selection among various methods in order to assure the quickest or optimal route. This dissertation process is comparable to climbing a mountain, in the sense that no one step can be removed without impacting the end goal,

[241] Cf. *Idem*, p. 631.

no matter which winding path is taken. The end is the summit, it is the truth, but we endeavor to find a way to reach it. The way is not evident and it is quite easy to lose our orientation. During mountaineering, what one needs is to find one path distinguishable from other, confused paths, and keep to the same way consistently. Though we might make modifications to the path we choose, we do not change to another mid-hike. There exist two important legacies of pragmatism as well as the guiding principles that can help us on our way to the summit of the mountain as its way to the truth. The first is the principle of continuity, and the other is the principle of differentiation. In such a manner, and in our selective way of finding the nature of pragmatism, we make the inquiring process continuously meaningful.

3.3 Summary

It is not neopragmatism, but classical pragmatism that is being introduced into cognitive science by Mark Johnson[242] and Andreas K. Engel et al., and to help build on this I will attempt to strengthen the preexisting foundation undergirding 'cognitive pragmatism' while introducing certain new elements.

In addition, it is not my intention to oppose Jerry Fodor or other post-cognitivists as I do not want to involve such theoretical contraventions into the domain. The object of Fodor's critique is rather the extended ideas of pragmatism, such as those of certain neopragmatists that he has mentioned. However, neopragmatism isn't the only game in town: neoclassical pragmatism is another extension of pragmatism that is in part a *critique* of neopragmatism. Furthermore, I also want to provide Fodor with some constructive feedback that he may use to further develop his RTM and confront the difficulties therein. In fact, from my point of view, Fodor may not be an anticlassical pragmatist cognitivist, but more accurately be said to belong to the same subset of 'pragmaticist cognitivism' that I have taken upon myself to represent.

[242] And also George Lakoff and Tim Rohrer.

Following a brief examination focused on laying the ground word for a discussion of 'cognitive pragmatism' and 'historical pragmatism,' I will revisit the original version in order to attempt a revival of its movement in cognitive science.[243]

Pragmatists evince a broad concern with the world and draft their arguments from a generally universal viewpoint. However, we still need to know where the center of the argument is, and where the initial curiosity that led to its conception originated. Following the historical clarification of pragmatism in both its historical and theoretical trajectories, we have increasingly progressed towards an understanding of the nature of pragmatism, and I will commence dissection of its next layer.

Through the lens of the above historical clarifications, we can see that 'action' is not the core of the idea of pragmatism, though it may constitute a crucial concern for it. From the understanding of James Campbell, action is invoked within a version of pragmatism known as 'practicalism.' Is practicalism a misleading form of orthodox pragmatism? For that matter, what is the core of pragmatism?

[243] In addition, it might be noted that pragmatists treat the meaning of 'pragmatic' and 'pragmatist' differently. This is a very important clue in distinguishing weak and strong ideas, in addition to the positive and negative sense.

Chapter Four

Classical Pragmatism: a Retrospection of the Theory

Given its accessibility and the practically useful ideas it yields, pragmatism remains popular in both philosophical and everyday discourse. It is interesting to find that pragmatism is continuing to grow in popularity, and that it is now being appreciated by scientists working in the laboratory in addition to the more philosophy-centric cognitive scientists. Moreover, pragmatism has proven a significant an influence on the philosophy of science. However, based on the content of the first three chapters, we have seen that further growth in the popularity of pragmatism in cognitive science is not a foregone conclusion; it has also received its fair share of criticism. Furthermore, the history of pragmatism is complex. There remain in the tradition a number of different concepts that cognitive scientists have not yet properly delineated or explored. Therefore, if pragmatism is indeed an essential factor in spurring cognitive science to revise its older way of thinking, it is necessary that more light be shed on it as a theory.

In this chapter, I will introduce a number of different concepts taken from the five most influential pragmatists in the classical tradition: Charles S. Peirce, William James, John Dewey, F. C. S. Schiller, and George H. Mead. As the three primary protagonists of pragmatism, the ideas of Peirce, James and Dewey yield significant depth and richness. However, I will take a different tack in introducing their thoughts. Firstly, I will select several of their articles, choosing those that I believe best describe the school's most essential features. Secondly, I will examine the differences between Peirce's pragmatism and James' pragmatism from Dewey's perspective. As a matter of fact, cognitive pragmatists are in the unfortunate habit of conflating James' pragmatism with that of Peirce, referring to those of James and Dewey collectively as the pragmatism of 'James-Dewey.' Yet, in actual fact Deweyan pragmatism is different from Jamesian pragmatism, and indeed more comparable to the ideas endorsed by

Peirce. Though the gulf separating Peirceian and Jamesian pragmatism is significant and in many cases obvious, for the cognitive pragmatists it is more important that I cover the oft-neglected differences between James's ideas and those of Dewey.

In the philosophical triad of classical pragmatism, Peirce has often played the role of 'founder,' James the 'leader,' and Dewey the 'mediator.' In this way, Dewey functions as a very important key for revealing the existing internal variations within the pragmatist tradition. Following this introduction, I will examine Schiller's humanism in order to supplement Mark Johnson's introduction to the pragmatist view of human complexity. Then, I will introduce Mead's pragmatism in order to fill the lacuna of classical pragmatism left in the cognitive research undertaken by Engel et al.

The purpose of this chapter is to identify the original thoughts yielded by pragmatism, with a focus on classical pragmatism. This is to say, as opposed to the direct approach of cognitive pragmatism being derived from the domains of psychology and science, what I am aiming to discover is rather the initial foundational ideas of pragmatism; more precisely, whether or not the initial concepts of pragmatism are indeed significant for those being studied currently in cognitive science.

4.1 Peirceian pragmatism and pragmaticism

Peirce is considered the 'founder' of pragmatism[244] because he was the one to first introduce the term into the philosophical lexicon. In one of his most famous articles, the 1878 'How to make our ideas clear,' the notion of pragmatism was presented for the first time. Peirce writes:

> It appears, then, that the rule for attaining the third grade of clearness of apprehension is as follows: Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of

[244] As it is noticed by Peirce, Alexander Bain is the 'grandfather' of pragmatism.

our conception of the object.[245]

From this it is clear that pragmatism is a theory of conception, or of the concept. What Peirce is trying to address is the complex issue of the coherence and integrity of thoughts as contained in and transferred by concepts. The object of conception lies in our mind, but this inner object has practical bearings as well in addition to the experience taken from the outside world. In this sense, Fodor's notion of 'mental representation' bears some similarity to Peirce's 'object of mind.' Indeed, Fodor also defines his philosophy as 'scientific metaphysics.' According to Fodor, cognitive science should be understood as 'other science;'[246] it is the 'speculative psychology' that is introduced in his most famous book *LOT1*. Distinct from other pragmatists, Peirce is regarded as a metaphysician. He defines his own philosophy as 'scholastic realism,' [247] and focuses on metaphysical concepts such as reality, generality, uniformity, continuity, simplicity, possibility, infallibility, etc. Fodor also maintains an interest in certain metaphysical concepts such as compositionality, productivity and systematicity of the mind. Here and more generally, it seems many of Peirce's and Fodor's ideas lend themselves to comparison. Further similarities and differences will be explored in Chapter Five.

Aside from Peirce, James and Schiller are two of the most important leaders in the domain. However, Peirce regarded both of them as 'kidnappers' of pragmatism. This is why Peirce defined his own idea for the second time; he wanted to remind readers that the initial thoughts of pragmatism are more essential than what he considered to be weaker conceptions of pragmatism, such as those formulated by James and Schiller. In 'What pragmatism is'[248] and 'Issues of pragmaticism,'[249] Peirce redefines his original thoughts on pragmatism with a new name and explains it in more detail. He credits this conception of pragmaticism to a nameless 'he'; this seems to imply that Peirce is recounting the stories of his close colleagues. *He* says:

[245] Cf. Peirce 1878; Buchler (ed.) 1940, p. 31.
[246] Cf. Fodor Jun. 23, 1966, p. 369.
[247] Cf. Peirce; Buchler (ed.), 1940, p. 274.
[248] Cf. Peirce Apr. 1905.
[249] Cf. Peirce Oct. 1905.

> Endeavoring, as a man of that type naturally would, to formulate what he so approved, he framed the theory that a *conception*, that is, the rational purport of a word or other expression, lies exclusively in its conceivable bearing upon the conduct of life; so that, since obviously nothing that might not result from experiment can have any direct bearing upon conduct, if one define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept could imply, one will have therein a complete definition of the concept, and *there is absolutely nothing more in it*. For this doctrine he invented the name pragmatism.[250]
>
> Consider what effects that might *conceivably* have practical bearings you *conceive* that objects of your *conception* to have. Then, your *conception* of those effects is the whole of your *conception* of the object … The entire intellectual purport of any symbol consists in the total of all general modes of rational conduct which, conditionally upon all the possible different circumstances and desires, would ensue upon the acceptance of the symbol.[251]

Indeed, there is no essential difference between pragmatism and pragmaticism. The difference is rather between Peirce's pragmatism (pragmaticism) and the ideas of other pragmatists. Peirce develops pragmatism alongside 'pragmaticism' as a species of proto-positivism. It has three important characteristics:

> First, its retention of a purified philosophy; secondly, its full acceptance [of] the main body of our instinctive beliefs; and thirdly, its strenuous insistence upon the truth of scholastic realism.[252]

In the above description, Peirce underlines both the intellectual and empirical aspects of cognition. Moreover, he emphasizes the 'rationalizability' and 'realizability' of thought in order to describe the features of the object of the mind. In other words,

[250] Cf. Peirce Apr. 1905, pp. 162-163.
[251] Cf. Peirce Oct. 1905, p. 481.
[252] Cf. Peirce Apr. 1905, p. 171.

rationalize-ability and realize-ability can be used to define the coherence and integrity of thought; the content of the concept concerns both the conceivable as well as experimental aspects, and they can be identified. Additionally, the symbol is the product of conceptualization. In fact, the theory of the sign is also an important element of Peirce's philosophy. This influence can be compared to Fodor's RTM—a comparison to be explored further in Chapter Five.

It seems that for Peirce, the concept is not a single unified idea. Rather, it represents a mold of the work and life of a group of typical persons. He takes the mold of scientists as an example. These people—whom Peirce refers to as 'laboratory-men'—share similar work and family lives. In fact, it is the laboratory-man, whose mind is deeply and skillfully molded by his life both inside and outside the laboratory, who possesses the ability to reveal the essence of pragmatism. Pragmatism solves the confusions of the laboratory-man in order to understand both their work and life. These concepts are both communicable and translatable between these people. Such concepts follow in the paths of those first devised by eminent metaphysicians and scientists such as Kant, Descartes, Berkeley, and Spinoza. And these ideas are continuously undergoing modifications and innovations through each successive generation. In this tradition, the combination between theory and practice is perfected, because this realizing and transforming tendency of its ideas is embodied in the scientific concepts used by and the beliefs of the scientific community; even in their daily lives. Furthermore, the scientific approach is the habitual choice of 'scientific men' with liberal minds, and both their ideas and practices are reliable and practically applicable.

However, not all scientists follow this scientific tradition. Hence, Peirce distinguishes between two kinds of men: laboratory-men and 'experimentalists,' or 'scientific men' and 'practical men.' The external conditions may be the same for those two types of men, but for the former, the law is internal and their inquiry is infinite. Therefore, the 'scientists' are similar to idealists, whereas the 'practical men' are more like realists. Peirce neither excludes intuition nor experimentation. Instead, the idea of pragmatism can reduce the contradiction between idealism and realism. According to Peirce, the two modes of inquiry are not contradictory. On the contrary, it can be

difficult to distinguish between them. In fact, 'the most striking feature of the new theory was its recognition of an inseparable connection between rational cognition and rational purpose.'[253] This theory is pragmatism.

For Peirce, human rationality can be reduced to two types of practices: one is purposeful action, and the other is the practical realization of an idea. One can give as reasonable an explanation for our action as possible. Nevertheless, for the realization of the idea, simply being reasonable is not enough. Here, we may also apply one of Fodor's ideas. For Fodor, one difficulty of cognitive science lies in distinguishing between 'merely representing' and 'representing as.' It appears that Fodor does not wish to give a reasonable explanation of the cognitive mind. He also rejects the notion that we can understand the content of the mind by reference to the actions of the body (this being the strategy of embodied cognition). By contrast, 'representing as' is an indirect way of understanding the contents of the mind by reference to its function. Indeed, science involves special and positive 'scientific knowledge' that is explained in the domain of cognitive science from multiple perspectives. Some, such as second-generation cognitive scientists, represent and use it directly; while others, such as Fodor, represent it *as* 'other science.' However, it seems that Peirce believed both approaches were meaningful.

In order to clearly delineate the line between 'rational cognition' and 'rational purpose,' Peirce introduces the ideas of Kant. For Peirce, philosophy is 'a series of problems capable of investigation by the observational methods of true sciences,—the truth about which can be reached without those interminable misunderstanding and disputes which have made the highest of the positive sciences a mere amusement for idle intellects.'[254]

It seems that thinking is a cognitive process. Even before or without being practically externalized, thinking should not be composed of futile efforts. The line between thinking and doing may lie between *praktisch* and *pragmatisch* in the sense of Kant, and *practicalist* and *experimentalist* in Peirce's sense. Indeed, it is not an

[253] Cf. Peirce Apr. 1905, p. 173.
[254] Cf. *idem*, p. 171.

alternative between rational cognition and rational purpose; these are inversely proportional, just like belief and doubt. In other words, doubt drives belief towards a possibly recognizable fixed state. In such a way, purpose is an embodied part of cognition.

When an idea is clear, its externalization as action will realize the content of the mind. It is the effect of action that makes the content of the mind meaningful. This is indeed the central theme of cognitive pragmatism. Like other pragmatists, such as James and Dewey, and the cognitive pragmatists working in cognitive science, Peirce also emphasizes the role of action for cognition. He writes:

> Consequently, there is a tendency, as action is repeated again and again, for the action to approximate indefinitely toward the perfection of that fixed character, which would be marked by entire absence of self-reproach. The more closely this is approached, the less room for self-control there will be; and where no self-control is possible there will be no self-reproach.[255]

It is not action that Peirce regards as the realization of an idea. It is more accurate to say that the idea is embodied in 'habit' rather than in action. This is also an original idea of Peirce's that can be introduced to strengthen the embodied theory of mind in order to induce a more significant turn in the understanding of cognitive states. This discussion will be further extended in Chapter Five.

Peirce may not choose between thinking/representing versus doing/action. Instead, pragmatism regulates the tension between *doubting* and *making believe*, *self-reproach* and *self-control*,[256] *falsity* and *truth*. Therefore, choices may not be easily weighted with results or values, because the essence of human cognition dose not only concern a good choice, but should concern the truth itself.

What we are dealing throughout the course of life is the choice between 'believing'

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[255] Cf. *idem*, p. 169.

[256] It's very interesting to find that in the work of Peirce there is a special kind of terms, such as self-satisfied, self-control, self-preparation, self-reproach, self-addressed, self-identity and self-sufficient. He does not understand the world from his personal point of view, instead, he put all of the universal in his cosmology.

and ‘continuously doubting’—and this is the path to truth. Self-persuasion is the most unproductive cognitive state, but it is unique with respect to human cognition. In contrast with a believing-doubting state, a state of self-persuasion may take place in order to keep someone from arriving at the truth. In other words, self-persuasion may be invoked for the purpose of hiding something from oneself; a self-persuading mind may persuade other minds to agree with them. In this sense, computers do not have a state of self-persuasion and thus a computer could not have the intention of persuading other computers to agree with it. Therefore, the embodied mind poses a challenge to the cognitive mind. In contrast to human cognition, computers possess two typical ‘cognitive’ states: true (‘1’) and false (‘0’). Computers do not possess complex qualities of cognition, such as self-persuasion. Therefore, for Peirce, human cognition is more complex than the cognition of a logical machine. This is also why Peirce explains logic in terms of logical relations: because human cognition is not restricted by logical or physical law, but instead by the law produced and controlled by itself.

The relation between belief and doubt is not in fact contradictory, but consists of a dialectic unification of rationality and practicability. It seems that although a doubting state is associated with uncertainty, it is indeed the first step and precursor to belief. Belief is not a final state of mind, but a fixed state that produces action. Without doubt, there would be no new beliefs. However, there is indeed no final fixed state of belief either. According to Peirce, if we want to know truth, we need to attain ‘a state of belief unassailable by doubt.’[257] But we cannot attain this, and therefore we cannot possess absolute truth. Instead, what we can do is make our way about with reliable information. This aspect is indeed the most important idea promulgated by pragmatism. It reminds us that on the one hand, we need to make our ideas as clear as possible, and on the other, it tells us how to fix the expressed idea as securely as possible. Concepts and symbols make this transformation both possible and difficult.

Our ideas are contained in the very concepts we use. Although a concept could be abstract, the abstractness of the concept is not unassailable. In this sense, the abstract

[257] Cf. *idem*, p. 168.

concept is itself a simple form capable of expressing rich ideas. Both ‘simplicity’ and ‘clarity’ are essential features of an abstract concept. That is to say, the conceptualizing process is also a process of symbolizing and simplifying rich ideas in the most communicable manner. Due to this process, the idea can be recognized as clearly and distinctly as possible. Indeed, the concept is communicated synchronically and transmitted diachronically. For Peirce, people live and work in a community, sharing certain concepts and ideas. Communication does not consist of simple agreement. In thinking with concepts, it is vital to be exposed to different ideas coming from different minds and to partake in the exchange of ideas. Sometimes, agreement can belie a rational and communicable appearance, whereas the underlying confusion and unspoken queries are kept hidden in the mind. Therefore, we should strive to ask ourselves what core ideas are contained in a concept instead of waiting to be questioned by others. But it is more difficult to persuade oneself than to persuade others. Peirce says:

> Two things here are all-important to assure oneself of and to remember. The first is that a person is not absolutely an individual. His thoughts are what he is ‘saying to himself,’ that is, is saying to that other self that is just coming into life in the flow of time. When one reasons, it is that critical self that one is trying to persuade; and all thought whatsoever is a sign, and is mostly of the nature of language. The second thing to remember is that the man’s circle of society, (however widely or narrowly this phrase may be understood,) is a sort of loosely compacted person, in some respects of higher rank than the person of an individual organism.[258]

It is difficult to make the distinction between truth and opinion apparent. This problem was posed more than 2500 years ago by Parmenides. He described two paths that lay in front of us: the *way of truth* and the *way of opinion*. The former is paved with realities, and the latter is paved with illusions. However, in following the way of truth,

[258] Cf. *idem*, p. 170.

there exist two forms of inquiry. We can ask ourselves *what it is* and *what it is not*. The existence of the object defines *what it is*: meaning we know the world as it is. Asking *what it is not* is not a real question. Similar to Parmenides, Peirce subscribes to the same method of inquiry in reaching truth. In other words, Peirce attempts to remove the obstacles to truth. For instance, though we cannot wholly exclude opinions, we can try to identify what information may in fact lie within opinions and how to rid ourselves of unreliable and unrealistic opinions. That is to say, neither knowledge nor opinions are necessarily true. Therefore, what really needs to be considered is the question, *what ought to be trusted*?

We cannot demand reliability from others. Instead, we need to find the way to gain access to their reliability. This reliable-ness may be more or less evident, but it can be judged. In this respect, we need to know what a reliable state would be. In fact, we are the most befitting agents to judge which states are reliable, given our own experience. That to say, first of all, we need to make ourselves reliable for others. It seems that the judgment of action is not enough, because the defining component of action is purpose. This reason is why Peirce promotes habit: because it is a sub-conscious or unconscious state. In fact, the promotion of habit is the most fundamental difference between Peirce's pragmatism and that of other pragmatists. Although habit has also been referenced in other forms of pragmatism, Peirce regards it as a central issue. Habit is not the opposite of thought; it is the bridge connecting thought to action. I submit that 'habit' could function as a cure for both RTM and ETM. Peirce says:

> Belief is not a momentary mode of consciousness; it is a habit of mind essentially enduring for some time, and mostly (at least) unconscious; and like other habits, it is, (until it meets with some surprise that begins its dissolution,) perfectly self-satisfied. Doubt is of an altogether contrary genus. It is not a habit, but the privation of a habit. Now a privation of a habit, in order to be anything at all, must be a condition of erratic activity that in some way must get superseded by a habit.[259]

[259] Cf. *idem*, p. 168.

Different to action, habit is a positive state. We possess belief-habit, but we do not have doubt-habit. Peirce rejects the universal skepticism of Descartes. A rational life for Peirce would involve the drive to obtain beliefs. In this case, doubt is not an obstacle, but a tool. He says:

> It should rather be understood as covering all rational life, so that an experiment shall be an operation of thought. Of course, that ultimate state of habit to which the action of self-control ultimately tends, where no room is left for further self-control, is, in the case of thought, the state of fixed belief, or perfect knowledge.[260]

A fixed belief is embodied in habit, which is under the control of the cognitive agent who possesses it. A rational life is not a goal-oriented target course. This concept itself proves very different from those of James and Dewey. For Peirce, we need to establish good habits: the habits of action and belief. The coherence between action and belief is the most important part in defining the nature of cognition. The content of habit does not only concern meaning, but also the reliability of our thoughts and how meaningful and accessible they are to others. Moreover, habit is a continuous cognitive process that improves with adoption; it is a form of 'behavioral adaptation.' Because of good habits, we avoid being misled by external confusions and unreliable distractions.[261]

I should note that it is more difficult to explain the habit of mind compared to the habit of action. The habit of mind is not customary repetition of the thought process. Methodology is the set of rules and practices used to lead and restrict the way towards true form. Hence, such rules and practices constitute a habitual form. Generally, we are not fully aware of the nature of our molded life, because we are just inhabiting it and modifying it without any indecision, and we are not capable of stopping. In such a way,

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[260] Cf. *idem*, p. 170.

[261] We can define those things that are difficult to be identified as 'otherness.' It is indeed the content of other mind; it is both invisible and hiding from us.

we can never see precisely where the most important part of our life's course lies, but we can nevertheless continuously devote our efforts to reaching the next step. The next step will be an improvement and we are capable of controlling our efforts in order to maximize efficiency. This is the idea of 'continuity,'[262] which is one of the central themes of cognitive pragmatism.

Cognitive pragmatists take cognition to be a cognitive process rather than a cognitive state. This consideration is also why action more befits an explanation of the enactive feature of cognition than mental representation. I would argue that Fodor would in fact refrain from criticizing Peirce's pragmatism, because he explains cognition as a reliable and continuous state on the one hand, and as a fixed state and symbol on the other. Similarly, Peirce's conception of pragmatism also lends itself to incorporation into Johnson's pragmatist approach. This is indeed a key contribution of this paper: I am trying to dissolve the Johnson and Fodor debate and remedy this controversy with concepts taken from Peirce's original conception of pragmatism. His ideas yield much potential and I will further expand on his contributions to the field in Chapter Five.

Consequently, Peirce's theory is pragmatism *par excellence*. I will introduce his pragmatist view of cognition in order to hopefully spark a 'pragmaticist turn' in cognitive science. This pragmaticism is different from the 'pragmatist turn' or 'pragmatic turn' in both its weak and strong senses. The difference between pragmatic and pragmatist is less distinct. One might say that the pragmatic explanation is about meaning, while the pragmatist explanation is about truth.

It should be noted that what I am primarily focusing on in this chapter is the existing research and literature on the nature of 'pragmatism.' However, I also underscore some essential clues that I believe can help us better conceive of an *advanced* 'cognitive pragmatism.' Cognitive pragmatism will be advanced not only because a growing number of classical ideas will be introduced into it, but also because my revision of a 'cognitive pragmaticism' is one that would be acceptable to those

[262] There concerns another important conception that noted by Peirce 'synechism, it explains the nature of continuity.

working in both 'first-generation' and 'second-generation' cognitive science. After a short introduction of Peirce's original ideas on pragmatism, I will also introduce the ideas of other pragmatists.

4.2 Jamesian pragmatism

James is beyond a doubt the most influential pragmatist.[263] He is responsible for developing pragmatism into a capable and philosophical school of thought whose foundational tenet is the rejection of the unending, fruitless debates plaguing metaphysics. James rejects metaphysics wholesale. However, the idea of pragmatism is neither a new concept[264] nor a new creation. James has acknowledged that he borrowed the label from Peirce and drew inspiration from the latter's pragmatist principles. James explains:

> Beliefs, in short, are really rules for action; and the whole function of thinking is but one step in the production of habits of action … Thus to develop a thought's meaning we need only determine what conduct it is fitted to produce; that conduct is for us its sole significance. And the tangible fact at the root of all our thought-distinctions, however subtle, is that there is no one of them so fine as to consist in anything but possible difference of practice.[265]

James interprets belief as the rules of action, and further takes the function of thinking as a former step of action. This thought involving action is not such similar to Mark Johnson's notion of embodied cognition. However, for both thinkers, it is action that is said to form the essential and basic cognitive state. Besides, James also emphasizes 'the production of habits of action' in addition to the common sense of action. He thus underscores the importance of differentiating 'practical' consequences

[263] Cf. Stuhr (ed.) 2010.
[264] Cf. James 1907.
[265] Cf. James Dec.8, 1904, p. 673.

from results—that is, the effects of thinking. In such a way, we may not inquire 'what does a thought mean?' Rather, we should consider what exactly we are capable of understanding in order to understand its essence. In fact, James does not deny the thinking capacity; he describes the justifiable and active externalizations of actions as lying beyond the indirectly knowable contents of the mind. It seems that James rejects such meaningless thoughts, but not thought itself. Contrary to thought, action is not meaningless, because action is a fact.

Rather than repackaging Peirce's ideas wholesale, James develops only parts of the former's pragmatism. Most of James's developments of Peirce's pragmatism are reflected in his explanation of the 'pragmatist methodology,' popularly known as the 'pragmatic method' and the 'pragmatic principle.' However, James takes Peirce's ideas in an extreme and radically empiricist direction (which is not to say that James is wrong, of course). Such a methodological emphasis, as Dewey understands it,[266] is sometimes misleading with respect to original thoughts—a factor that has contributed to further fragmentation among pragmatist followers. However, James deserves credit for his introductory efforts, which after all gave pragmatism a fresh audience twenty years after its birth. James can doubtlessly be considered the leader of pragmatism.

By providing a functional explanation of thinking, James downplays the differences in the contents of thinking, highlighting instead the significance of the result. Unlike Peirce, who strove to assign explanations to the conceivability and reliability of human thought, James set out to explain the 'purposefulness' of human behaviors and 'reasonableness' of human cognition. James also attempted to explain humanity, but his position is perhaps best described as being that of a half-conscious humanist.[267]

Rationality and purposefulness constitute a crucial boundary between theoretical and practical activities. Though the results of practices can reduce the difference between truth and reality, they can never completely eliminate all the negative elements of thinking. James tries to narrow down the essential contents of human thought through psychology and ethics in order to determine the ultimate criterion of truth and thus

[266] Cf. Dewey Dec. 21, 1916.
[267] Cf. James Mar. 2, 1905.

imbue truth with meaning. As opposed to the Peirceian ideal of 'truth-seeking,' James defines the 'ultimate test' for truth as 'truth-performing.' James writes:

> The ultimate test for us of what a truth means is indeed the conduct it dictates or inspires. But it inspires that conduct because it first foretells some particular turn to our experience which shall call for just that conduct from us. And I should prefer to express Peirce's principle by saying that the effective meaning of any philosophic proposition can always be brought down to some particular consequence, in our future practical experience, whether active or passive; the point lying rather in the fact that the experience must be particular, than in the fact that it must be active.[268]

James explains the meaning of truth, instead of interpreting the nature of truth. He regards truth as a sign whose result is the ultimate test of experiential content. In other words, the meaning of truth can be determined by its results, which may be realized by behavior. It seems that being different is the first step to being right, and this rightness can be seen and further evaluated from an external perspective as a further confirmation. For James, 'there can *be* no difference which doesn't *make* a difference.' Philosophy is the way to make a significant and definite difference rather than various differences in order to realize the meaning of our life. As a result, a variety of individual differences, particular reasons, and practical purposes cannot be easily removed from our path to truth. That is to say, the 'will' of the agent is a necessary condition, while the coherence provided by the appearance is a sufficient condition. For James, the bridge between them is the perceivable justification. This practical and individual perspective differs significantly from that of Peirce. For Peirce, the only essence of mind as a limit of thinking is inter-law, further as the habit of mind.

Truth may be a realizable result. If the result were both effective and reliable, this result would not obfuscate the truth. Moreover, this result is different for different individuals. James thus underscores the practicality *and* individuality of truth; he

[268] Cf. James Dec.8, 1904, p. 674.

intends to settle metaphysical disputes deemed interminable by use of a 'pragmatic method.' However, this does not mean that this viable result is the truth itself. Instead, it can be regarded as a token of the truth. Furthermore, it is not essential to interpret the world as 'one or many,' 'fated or free,' 'material or spiritual,' if and only if such ideas can be used to see the world in a meaningful way in addition to possibly realizing the full meaning. According to James, discussions between philosophers can sometimes turn meaningless. This rationale is why, in an attempt to put an end to unresolvable debates, James uses a different method to see truth: namely, the pragmatic method:

> The pragmatic method … is to try to interpret each notion by tracing its respective practical consequences. What difference would it practically make to anyone if this notion rather than that notion were true? If no practical difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle. Whenever a dispute is serious, we ought to be able to show some practical difference that must follow from one side or the other's being right.[269]

If a truth cannot produce a distinguishable result, then the truth's content is inconsequential. James does not propose the method of comparing notions. He does not explain the conceptual perspective of truth. That is to say, James does not conceive of the contents of the mind; contents which may be meaningful, though perhaps not perceivable. Instead, he insists on truth's reliance on practice.

It can be observed that the topic of belief is essential to early pragmatism. James challenges theism in a pragmatic way: the existence of God is rendered provable rather than a permanent topic of debate in the realm of metaphysics. Pragmatism provides a special understanding of human nature that differs from both materialism and idealism. It is the significance of God's existence that proves the fact that God exists. Instead of tackling uncertain thoughts, most of us probably tend to concern ourselves with what they are *not*. James does not suggest seeing truth from a negative perspective, but rather

[269] Cf. James 1907; Stuhr (ed.) 2000, p. 194.

in a fully positive sense. Thinking is implicit in the process of oscillating between belief and doubt. Peirce thus regards doubt as the motive, whereas James disregards it.

Religious melancholy cannot be expressed in words, and can be erased by adopting a positive view. What a philosopher should consider him or herself is, as James says, 'the absolute things, the last things, and the overlapping things.' Those things are definitively essential for challenging the chaotic objects of mind with which both clarity and ambiguity are mixed in; it is indeed the indistinct states that are more difficult to identify. However, the 'superior mind' and 'shallow man' are definitely distinguishable, for the mind of the latter is hiding, and cannot be easily seen. These objects are hidden and obscure, and they should be challenged by being externalized. James tries to reveal the contents of the concept of God by using the pragmatist methodology. The existence of God can only be proven by God's actual effects, which is to say the actual effects resulting from *belief* in God. More generally, any basic hypothesis has to be capable of yielding realizable results. He writes:

> Doing practically all that a God can do, it is equivalent to God, its function is a God's function, and is exerted in a world in which a God would now be superfluous; from such a world a God could never lawfully be missed.[270]

The meaning of God is the realization of its function. Although God does not exist in the perceivable dimension, he is involved in our empirical experience, because the idea of God's existence itself could have an effect. In other words, the idea of the existence of God is not confined to any specific form, but to the premises of the meaningful results of such an idea, no matter what they are. The idea of God has the same meaning for common men, scientists and metaphysicians, but this idea is irrelevant to the particular way in which God appears to a particular person. For instance, when we feel helpless, the existence of God would mean consolation, through which the essential significance of God is realized. Such realization can be related to any

[270] Cf. James Dec.8, 1904, p. 678.

experiential content. As to the explanation of God, James is more inclined to teleology. He suggests we believe in the existence of God in order to eradicate hopelessness and to gain sentiments of hopefulness from God. James explains further:

> I am now using the God-idea merely as an example, not to discuss as to its truth or error, but only to show how well the principle of pragmatism works. That the God of systematic theology should exist or not exist is a matter of small practical moment. At most it means that you may continue uttering certain abstract words and that you must stop using others.[271]

If there exists an entity, such as 'otherness' that can be easily seen, Peirce and James would adopt different techniques for confronting it. Peirce would attempt to clarify it, whereas James would set it aside. From a pragmatist point of view, it appears that the difficulty lies neither in accepting nor denying the questionable substance that is God. Rather, it is the attitude and the method applied in terms of being both theoretically and practically meaningful that poses a challenge. The truth is the goal, but an unperceivable end.

In explaining the significance of God, James uses the term 'pragmatism' and 'practicalism' in subtly different ways; he appeals to the latter for its rich meaning. Similarly, Peirce distinguishes between an 'experimentalist' and a 'practicalist.' For Peirce, the former should be critiqued, while the latter should be encouraged. In James's analysis, the key to pragmatism is the effect. At the same time, practice and action reveal the significance of thinking, as the function of thinking is effective. This idea may not have been accepted in the original sense of Peirce. As Dewey noted, James did not find Peirce's notion of 'practice' particularly convincing.[272] In addition, James did not elaborate on his explanation of 'the habit of action.' Dewey thus explains James's ideas and clarifies both the meaning of practice and Peirce's original ideas.[273] From James's perspective, pragmatism has a clear teleological inclination. This is probably

[271] Cf. *idem,* pp. 682-683.
[272] Cf. Dewey Jun. 8, 1905.
[273] Cf. Dewey Feb. 13, 1908.

why for many cognitive scientists the notion of 'action' has come to symbolize pragmatism. Since action is purposeful and meaningful, it may be regarded as a distinct subject for cognition research. However, James extrapolates in order to see the determination of a recognizable truth, but he does not take truth to be an easy issue to face. He explains:

> If theological ideas prove to have a value for concrete life, they will be true, for pragmatism, in the sense of being good for so much. For how much more they are true, will depend entirely on their relation to the other truths that also have to be acknowledged.[274]
>
> The truth is the name of whatever proves itself to be good in the way of belief, and good, too, for definite, assignable reason.[275]

In its most essential significance, through truth, values can also be realized (the virtue of this value being utility). Since truth is difficult to observe in a direct manner, we need other reliable references to guarantee its reality. For James, pragmatism has the character of both rationalism and empiricism; it follows logic and seeks sense. He explains:

> Rationalism sticks to logic and the empyrean. Empiricism sticks to the external senses. Pragmatism is willing to take anything, to follow either logic or the senses and to count the humblest and most personal experiences. She will count mystical experiences if they have practical consequences. She will take a God who lives in the very dirt of private fact—if that should seem a likely place to find him.[276]

It is interesting to note that Peirce uses the pronoun 'he' as the performer of pragmatism, while James employs 'she' in order to seek his essence. Through the lens of Peirce's thought, James exposes his understanding of the nature of pragmatism and

[274] Cf. James 1907; Stuhr (ed.) 2000, pp. 200-201.
[275] Cf. *idem*, p. 201.
[276] Cf. *idem,* p. 202.

the essence of cognition. However, Peirce himself criticized certain aspects of James's pragmatism, writing:

> There is the pragmatism of James, whose definition differs from mine only in that he does not restrict the 'meaning,' that is the ultimate logical interpretant, as I do, to a habit, but allows percepts, that is, complex feelings endowed with compulsiveness, to be such. If he is willing to do this, I do not quite see how he need give any room at all to habit. But practically, his view and mine must, I think, coincide, except where he allows considerations not at all pragmatic to have weight.[277]

According to Peirce, James has not tackled the challenging aspects of his ideas, but rather has constructed a less difficult version. James did indeed assert that 'the principle of pragmatism, as we may call it, may be expressed in a variety of ways, all of them very simple.'[278] In this way, too, Jamesian pragmatism differs from that of Peirce. Through the potential and intrinsic restrictions of the mind, Peirce shapes the concept into a clear method of thinking. On the other hand, James develops it as a broad theory with practical applications that aim to reveal the 'natural understanding' of the human being.

4.3 Deweyan pragmatism and instrumentalism

In 1905, Dewey produced what was likely his first key discussion on pragmatism. In 'The realism of pragmatism,'[279] he gives an outline of instrumentalism as well as the basis of his understanding of pragmatism.

Before introducing the notion of 'instrumentalism,' Dewey covers the realist dimension of pragmatism. In strong contrast to the interpretation of Stephen S.

[277] Cf. Peirce; Buchler (ed.), 1940, pp. 287-288.
[278] Cf. James Dec.8, 1904, p. 673.
[279] Cf. Dewey Jun. 8, 1905.

Colvin,[280] Dewey claims that pragmatism is a school rooted in realism, rather than subjective idealism, and it is absolutely not a form of solipsism.[281] Dewey opposes the idea of combining pragmatist principles with explanations of complex psychological phenomena. For him, pragmatism is not a theory that concerns only knowledge, given that epistemological idealism is in need of critique. Instead, pragmatism 'performs' knowledge and takes it as fact as well as an 'accomplished matter.' In such a way, 'things are representative of one another.' Dewey explains:

> Ideas, sensations, mental states, are, in their cognitive significance, media of so adjusting things to one another, that they *become* representative of one another. When this is accomplished, they drop out; and things are present to the agent in the most naïvely realistic fashion.[282]

The cognitive significance of ideas, sensations, and mental states is their representational relation. They are all connected with one another in various mediated ways. Representation can be any form in which objects are directly presented. Their significance lies in the transmitting of information. Representation is the bearer of mental transmission: it supports the contents of thinking in the process of being represented and recognized. And when the contents of representation are determined, the functions of representation are also realized. The objects of the mind are complemented by realistic significance, until they reach their simplest and clearest state, ready as cognitive conduct. It seems to Dewey that the 'state of consciousness' is the state of 'getting knowledge.'

We should not doubt the appearance of things because they are objective. However, we can take them as representations. The mind is never empty. Although things are always presented to us in objective ways, we still have no way of knowing such objectivity. It is not so much a problem to understand (either immediately or minimally)

[280] Cf. Colvin Apr. 27, 1905.
[281] Cf. Dewey Jun. 8, 1905, p. 324.
[282] Cf. *Idem*, 1905, pp. 324-325.

or to believe; the difficulty lies rather in the question of how to 'perform' knowledge continuously. 'Being' in a conscious state, according to Dewey, is equivalent to 'cognitive speaking,' which only takes effect in situations of inquiry. This means that cognition arises and functions in 'problematic situations,' and such problems can be involved within representational relations in order to attain what would be realized by their accomplishment.

Dewey set the above ideas apart from the projects of most cognitive pragmatists. Cognitive psychology remains a fundamental branch of cognitive science. In addition, they are more concerned with the various social and cultural restrictions on understanding complex mental phenomena. Instrumentalism, in providing a modest version of epistemology, is aimed at obtaining certain knowledge. This knowledge should, first of all, rest on fact, and secondly, contribute to effect. According to Dewey, any reference only exists as representation before being completely verified. This perspective can be regarded as an initial functionalistic view that is further refined by the neopragmatist Hilary Putnam into functionalism as well as natural/direct realism. However, their positions differ because Dewey develops this idea in order to explain the meaning of representation. He defines:

> Instrumentalism is thus thoroughly realistic as to the objective or fulfilling conditions of knowledge. States of consciousness, sensations and ideas as cognitive, exist as tools, bridges, cues, functions—whatever one pleases—to affect a realistic presentation of things, in which there are no interesting states of consciousness as veils, or representatives. Known things, as known, are direct presentations in the most diaphanous medium conceivable. And if getting knowledge, as distinct from having it, involves representatives, pragmatism carries with it a reinterpretation, and a realistic interpretation, of 'states of consciousness' *as representations*. They are practically or effectively, not transcendentally, representative. They represent in the sense in which a signature, for legal purposes, represents a real person in a contract; or as money, for economic purpose, represents beefsteak or a night's lodging. They are symbols,

in short, and are known and used as such.[283]

Being developed into a form of radical empiricism, instrumentalism regards state of consciousness, sensations, and ideas as states of cognition that exist in the forms of tools, bridges, cues, and functions. Therefore, it seems that the realistic presentation of things and representations do not conflict with one another. Instead, they constitute sequential stages in the process of cognition.

Dewey distinguishes between two states of knowledge: 'known things' and 'getting knowledge.' The former is direct presentation, which is a diaphanous medium; the latter is a state of acquiring, representing, and explaining, which overcomes uncertainty and transforms it into feasibility. It is noteworthy that Fodor's critique of 'concept pragmatism' is comparable to Dewey's criterion of the 'conscious state,' which may be further explored.

Consciousness functions as a switch of the mind. Representation is not transcendental; it implies practical possibility. According to Dewey, the significance of a sign is the way in which it is known and employed as such.

Notions such as 'presentation,' 'representation,' and 'reinterpretation' are not rejected by pragmatists; they are steps that cannot be removed from the cognitive process. It seems that both Johnson and Fodor conceptualized pragmatism in harsh terms. Although Dewey does not directly reference the semiotics of Peirce, he underscores the significance of symbolized explanation.

In Peirceian semiotics, representamen and signs are identical. The significance of a sign lies in its explanatory function. Such an interpretation is largely similar to Fodor's mental representational theory of mind. However, Fodor does not acknowledge the values of the pragmatist theory of representation, the function of consciousness, nor the intentional disposition of mind. On the contrary, he entirely rejects the pragmatist view of 'concept possession.' For Fodor, possessing a concept in an epistemological position does not consist of an aquatinted state of persisting a speculatively clear concept.[284]

[283] Cf. *idem,* p. 325.
[284] Cf. Fodor 2004; 2008.

However, in contrast to representationalism, Deweyan instrumentalism interprets representation not as an intentional state, but a functional state in addition to a comprehensive and relative experience. From a pragmatist perspective, it appears that mental representation and perceptual experience are respectively involved as cognitive states, co-existing in a state of tension.

In Deweyan theory, the term 'representation' is not used in negative sense. However, he does not give a complete characterization of representation as a mental phenomenon, nor does he analyze the intrinsic nature of mind, such as intentionality. Moreover, he does not distinguish misrepresentation from normal representation. It may be further noted that, according to an instrumentalist, representation and misrepresentation are difficult to distinguish from the perspective of absolute realism. Dewey does not further analyze the contents of representation, nor does he attempt to show whether there is any correspondence between mental contents and the external world. Instead, Dewey claims that mental contents can be externalized purposively and correctly. The changes taking place on a psychological level are based on changes in the external world. As a strategy, instrumentality implies both reality and physicality in addition to the comprehension of cognitive state. Dewey describes a view on 'psychophysical parallelism' and explains:

> There is no sense that I am aware of in which their description is to be limited to brain terms rather than to chemical terms, or to terms of changes among extra-organic objects, or to terms of changes among social objects, persons. The point is simple that psychical changes do correspond to changes in reality.
>
> Pragmatism would thus deny absolutely that psychology rests upon the idealistic presupposition. The psychologist has the same naïve right to things and bodies as has the geologist or zoologist.[285]

The pragmatist interpretation of mind does not rely merely on any idealistic

[285] Cf. *idem,* p. 326.

presupposition. Rather, it is based on experimental evidence. Dewey distinguishes between the 'scientific knowledge of psychology' and 'scientifically methodological psychology.' The content of the mind is based on the mental state persisted by the physical feature of the brain, described identically in the biological and physical terms. The challenge lies in determining how to identify them coherently. Dewey provides a revised view based on his understanding of idealism and empiricism. In such a way, 'what pragmatism takes from idealism is just and only *empiricism*. Again, what 'pragmatism has learned [is] that the true meaning of subjectivism is just *anti*-dualism.' He defends the original ideas of pragmatism and explains:

> The point that the critics of pragmatism have missed with a surprising unanimity, is that in giving a reinterpretation of the nature and function of knowledge, pragmatism gives necessarily a thoroughgoing reinterpretation of all the cognitive machinery-sensations, ideas, concepts, etc.; one which inevitably tends to take these things in a much more literal and physically realistic fashion than is current.… Philosophy can enter again into the realistic thought and conversation of common sense and science, where dualisms are just dualities, distinctions having an instrumental and practical, but not ultimate, metaphysical worth; or rather, having metaphysical worth in a practical and experimental sense, not in that of indicating a radical existential cleavage in the nature of things.[286]

Both psychological and empirical criteria are emphasized in the structure of Dewey's view on cognition. The former contributes to explanations of 'literal emotions and felt impulses,' while the latter contributes to adjustments of the former by 'utilizing biological evolutionary data.' In other words, a pragmatist critiques subjectivism from an empirical viewpoint with its basis in scientific confirmation. Furthermore, Dewey determines the features of pragmatism in an epistemological dimension, indicating the limits of our cognition. He says:

[286] Cf. *idem,* p. 326.

> We can think freely and naïvely in terms of things—because things are no longer entities in a world set over against another world called 'mind' or 'consciousness,' with some sort of mysterious ontological tie between them.[287]

Dewey reflects on the real world through an independent method of thinking, which differs from Cartesian doubt. Pragmatism and instrumentalism regard representation and consciousness as bridges connecting the internal and external worlds. For Dewey, representation is not a state, but a constantly changing process. The significance of signs and representations is their function, and the significance of a thought is only revealed in its result. With this particular perspective, Dewey critiqued James's view of consciousness[288] and his radical understanding of the nature of truth. However, this distinction has been overlooked by various thinkers of cognitive pragmatism, such as Mark Johnson.

For Dewey, the core of pragmatism relates to the tension between 'ethical idealism' and 'empirical fact.' As a result, human cognition is concerned with emotions and sensations, which are 'biologically conditioned as to their origin' and also 'bearers of the transformation of things.' In other words, although these psychical concerns are more or less subjective and opaque, they play a representative function in the transmission. Therefore, 'esthetic, intellectual and practical transaction' are inseparable from the justifications of truth. That is to say, they are all immovable, meaningful contents of cognition 'in an all-around way.' Dewey also offers a definition of meaning. He says:

> Meaning, significance is never just predetermined. It is always hanging upon the operation of the psychical, of the peculiarly individual. Hence morality: the recognition of responsibility for the use of the psychical, as the ultimate determiner of the ways in which the world of all (you and me) who live among things grows in significance. It is because the psychical is, cognitively, realistic, that morality has an empirically real sanction and yet an

[287] Cf. *idem,* p. 326.
[288] Cf. James Sep. 1, 1904.

> ideal bearing of infinite import. It never gets in the way of things of knowledge to obstruct or pervert; but its prior operations control what things become representative of one another, and hence the experienced meaning, or value, of those things.[289]

Meaning is not only a meaningful result. It condenses the whole process of making this result meaningful; no steps can be removed. In this way, negative and positive elements are both essentials that contribute to the same conception of meaning. However, it is difficult to distinguish mixed negativity and positivity. Hence, Dewey categorizes them as 'media' in order to realize their function as 'surely and reciprocally of one another.' The cognitive state is a continuous process involving 'conflicting, unsatisfactory, and consequently fragmentarily significant situations' and 'the free, the indeterminate, the growing, the potential factor in reality.' Therefore, the most essential thing is to realize the effect of the transformation, not to identify each step separately. The nature of continuity implies a growing tendency to render every potential factor possibly realizable. It is the representative relation that plays a crucial role in revealing the possible meaning of truth. Dewey's approach is more similar to Peirce's pragmatism than it is that of James. Moreover, James and Dewey also highlight the importance of habit, while discussing it less and in less evident terms than Peirce. Habits are akin to a biological function that perpetuates the essence of a cognitively capable creature's life. These ideas shared by the original pragmatists would come to be introduced into cognitive pragmatism and these new pragmatists' understanding of action. Additionally, the notion of a functional role of representation might also be introduced into RTM in order to explain the relation between different mental representations—because pragmatism does not exclude embodied meaning and the speculative.

Superior to the positions of both Peirce and James, Dewey's pragmatism goes beyond the conflict of pragmatism and anti-pragmatism. It has also directly inspired the neopragmatism of Richard Rorty and Hilary Putnam,[290] both of whom wield significant influence in today's discussions on the philosophies of mind and language.

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[289] Cf. *idem,* p. 327.
[290] Cf. Hildebrand 2003.

Rorty's thinking is less a continuation of classical pragmatism than a refocusing of the pragmatist project onto questions of social practice[291]—especially the relation between rationality and practicality and its effects on socio-cultural as well as psychological levels. Putnam's form of neopragmatism[292]—along with his direct realism and functionalism[293]—attempts to understand the body-world relation in natural ways through perception. It seems that both Rorty and Putnam reject the existence of mental representation. In this sense, they do not inherit the legacy of Dewey and his representational theory. Instead, the majority of neopragmatists are sympathizers of externalism—a school whose epistemology is grounded in external experience rather than internal representations. Cognitive pragmatists should take note of this divergence between the schools of classical pragmatism and neopragmatism, because in their debates both internalism and externalism are involved in the semantics theory of mind.

4.4 The difference between Peirce's pragmatism and James' pragmatism—from Dewey's perspective

Peirce's and James's respective views on pragmatism evidently differ, but the exact ways and extent to which they do so has yet to be seen. Their ideas were still being actively debated at the time(s) of their passing. As a result, Dewey's outline of Peirce's pragmatism[294] is fundamentally different to that of James. Although Peirce never referenced Dewey,[295] they shared the same perspective. It is especially crucial for cognitive pragmatists and their opponents to note two divergences in thought between these three thinkers.

The first divergence—the most evident point of contention—exists between Peirce and James. Notably, Peirce changed the name of pragmatism to pragmaticism in order

[291] Cf. Rorty 1982.
[292] Cf. Putnam 1995.
[293] Cf. Putnam 1999.
[294] Cf. Dewey Dec. 21, 1916.
[295] Peirce was Dewey's adviser.

to emphasize this distinction. The second divergence—which is much less evident—exists between James and Dewey. The disparity is still apparent but could easily be overlooked because certain thoughts advocated by the two thinkers easily lend themselves to comparison.

In the debate surrounding cognitive pragmatism, both advocates and critics of pragmatism had not yet yielded to the less evident divergence taking place within the school. For example, while Mark Johnson likely perceived the first divergence, he overlooked the less evident one—one that could potentially sabotage the internal coherence of his own embodied approach (which was itself based on the pragmatism(s) of James and Dewey). In the very least, this vital divergence should be scrupulously introduced into cognitive pragmatism in such a way as to ensure that the pragmatic turn is made properly.

It is now perhaps necessary to examine the differences between three of pragmatism's most crucial concepts: action, practice, and habit. There is a growing tendency to move from action to habit, while Dewey, Peirce, and James address their tensions in different ways. Next, I will probe Dewey's point of view in order to better explain the deeper differences that divide Peirce's and James's pragmatism.

First of all, Dewey remarks on two important events that occurred at the outset of pragmatism. The first is James's California Union address in 1898, and the other is Peirce's paper in the January issue of *Popular Science Monthly* in 1878. According to Dewey, James misinterpreted Peirce's original idea and hence misguidedly led pragmatism down another street. The fact remains that James's pragmatism has received more popular acclaim than that of Peirce.

Second, just as action is important for James, habit is important for Peirce. Peirce's pragmatism is steeped in the Kantian tradition (it is illuminated in particular by his reading of the *Kritik der reinen Vernunft*), whereas James is working in the tradition of the ancient Greeks. Furthermore, what Peirce proposes to expose is the habit of mind of what he refers to as 'laboratory-men.' This mental habit embodies both meaning and truth. In other words, the truth has been realized the meaning through the experimental work shared by this particular group of people.

Contrary to general experience, habit is a subconscious state. That is to say, the agent may be unaware of when he is naturally acting according to habit. In addition, habit may be observed from the other's perspective and is a meaningful cognitive state. This cognitive state can be further understood as a method of thinking. In order to explain the meaning of habit, an embodied approach plays a large role. Habit is not blind; it is attached to the inductive model of experience. Moreover, habit is not a private state, given that it is not difficult to express its meaning: it is embodied meaning. The embodiment of habit is akin to the abstractness of a concept. But as a cognitive state, the former is more fundamental and widespread in the majority of beings. For example, it is easy for a frog to catch a fly. But we cannot say that the frog fully understood the concepts of directions, distance, and timing. Instead, the frog *embodied* the meaning of direction and distance in order to catch its target (as well as its food). As a result, the meaningful content of habit has certain essential features.

On the one hand, habit is conceptually meaningful. But it can also be enriched by experience. There exists a clear tension between conceivability and practicality in the relation of abstractness and embodiment. The concept of pragmatism explains this indirect feature of the mind in order to distinguish between rational cognition and rational purpose. In fact, Peirce conceived the notion of pragmatism for the purpose of understanding the nature of the latter, whereas the former is nevertheless held to be the highest ideal. Therefore, it is more fitting to literally define this idea with the name of 'practicism' or 'practicalism.' However, Peirce chose differently (unsurprising, given his Kantian predilections).

Pragmatism is an extension of the idea of *pragmatisch*, which is distinguished from *praktisch*. Cognitive pragmatists should take care to note this difference, as they regard 'practice' in a more general sense. Yet, in Peirce's terminology, 'practice' is defined according to Kant's sense, appealing as it does to the highest rationality. In other words, Peirce's definition of practice is detached from the realm of common experience. However, people explain practical knowledge in terms common-sense reasoning. For them, knowledge is directly related to truth, and pragmatism is connected to some definite human purpose, intended to explain purposive and

meaningful practice. But indeed this doctrine is not about truth, it is about meaning. It is true that, for a real pragmatist, the way to obtain truth is through meaning; but the goal is not to acquire meaning—the meaningfulness is just a recognizable result.

In actuality, Peirce's pragmatism is not difficult to understand, despite the fact that his ideas generally tend to be misunderstood by others. 'Pragmatic' seems less rigid then 'pragmatist,' but the fact is that others have overlooked this dimension. As a result, certain widely-accepted ideas of pragmatism have been enthusiastically used in the explanation of meaning of action and practice.

It is difficult to get to the core of pragmatism, because Peirce does not show us *what the way is*. Instead, he tells us *how difficult the way will be*. Thus, it is easy to lose one's way in spite of Peirce's guidance on the way to truth. Moreover, the scientific experiment could always fail. In this procedure of inquiry, the end is not a purpose. Rather, it is the evident goal we should produce. In this way, a rational purpose is a clear goal of what it means to be human, but it is not the ideal of a rational life. Such terms, concepts, propositions, and even theories are not made to challenge or justify truth. Instead they are performed via rational capacities.

James's pragmatism has overlooked Peirce's ideal as well as the rationality and conceivability of the mind. Instead, he has expanded the meaning of practice and action as well as the essential and particular purpose of the mind. However, he does this while understanding the concept according to its common sense definition. Moreover, James described action as the most important concept in pragmatism; it is involved in the active and effective dimension. It seems to not be an intellectual approach, but a convenient approach, advancing the meaning of truth through actions.

The explanation of result from the perspective of 'future' or 'particular' is not essential in the tenets of Peirce's pragmatism. Peirce can accept that 'the end of man is action' only because action is in want of an end. Instead, after benefiting from the results, the further step is to abstract the rational aspect of action. In such a way, the concreteness will be represented in the abstractness by the concept. It appears that the evolution from action to habit is a natural tendency, because the latter includes much more meaningful and practical knowledge than the former.

Third, differentiation is not the choice of methodology for Peirce, but rather for James. However, for James, it is the different and particular view that exposes the concrete meaning of life. There is nevertheless a tension between 'general ideas' and 'practical facts.' Moreover, the tension between monism and pluralism is different to delineate. The crux is not about how many elements or principles there should be. Even in the pluralistic disposition, there remains a unifying force. That is to say, each differentiated token has its own inner force. In this way, habit is an example that explains the tension between universal law and a particular situation in the forms of 'translation' and 'association.' Pragmaticism explains the cognitive relation and process rather than separately meaningful cognitive states. Therefore, neither representation-oriented cognition nor action-oriented cognition has been involved in pragmaticism in such a sense. Indeed, pragmatists would not favor one single approach. This transition yields both mental and physical perspectives. This reason is also why the concept of habit has been chosen to remedy the tension between the cognitive mind and the embodied mind. This is the topic of Chapter Five.

Habit is a cognitive state performed in self-satisfaction and appeals to our capacity for self-control. Peirce's pragmatism identifies meaning with the formation of a habit, which contends for the the *greatest generality* and the *widest range of application*. Adopting neither extreme rationalism nor extreme empiricism, pragmaticism is a neutral way to mediate the difficult tension between them. Habit is the bridge, but it also seems that it is a way of acting—in a more reliable form. That is to say, it is easy to act, but difficult to perform a habit, either good or bad.

Furthermore, from an ethical (and also evolutionary) perspective, the truth of life is embodied in the process of evolution. Habit embodies the generalized traces of reasonableness with the greatest success as well as meaningful embodied actions in procedure, of which the embodiment of rational purports also consisted. Furthermore, in the evolutionary process there is no retrospection and no regret; it is an irreversible process, unique for everyone. Action is not cognitively meaningful because actions are separate states, segment by segment. Therefore, actions should be organized by rules, such as the laws of logic, in order to satisfy the growth of reasonableness.

Fourth, through proposition, it is 'virtual predictions' as well as virtual conventions that are presumed by Peirce. Propositions may be applicable to human conduct and its applications universal and permanent. Though enacted through actions, it is 'the will to believe' that is promoted by James. Peirce rejects this radical view and does not appeal to the *will* to believe, but rather to the *fixation of* belief. However, he does not reject the consideration of social factors. He indeed advocates use of the scientific method more broadly. It seems that the tension between reality and truth is the most crucial focus of pragmatism for both thinkers. Dewey further describes Peirce's pragmaticism 'as a doctrine that meaning or rational purport resides in the setting up of habits or generalized methods, a doctrine passing over into the metaphysics of synechism.'[296]

In such a way, reality needs more confirmation to bolster its tenacity and continuity. Conformity does not persist only through a process of growing acceptance and proliferation. To grow and become strong enough to withstand strong winds, the concept has to undergo trials, meet contradictory forces, and learn to adapt. Similar to a plant, proper pruning may promote the plant's tendency to grow. In order to remedy belief, Peirce discusses the tension between belief and doubt. During the process of thinking, belief and doubt are involved, but they can differ in their empirical results. Belief determines habit, but doubt does not. Belief is calm and satisfactory, yet doubt is uneasy and dissatisfied. It is nevertheless doubt that is responsible for motivating our sense of inquiry for the purpose of challenging our sense of belief. In addition, 'our own belief is precariously exposed to attack and doubt.' As Dewey sees it, in Peirce's theory, 'the sole object of inquiry is the fixation of belief,' and 'the real problem is to fix the belief of the community.' One finds that pragmatism searches for the way to truth, but does not prepare it. Truth is conceivable and projectable, while when the tokens of truth have been realized, they can nevertheless be challenged continuously.

In addition to conformity, tenacity can be further confirmed by scientific methods and resources. However, it may also be disturbed by social factors, such as authority. The method of authority does not positively help to fix beliefs, but can entrench it to

[296] Cf. Dewey Dec. 21, p. 712.

obtain certain permanent agreements in society. As a result, ‘fixation of belief’ is different from being *agreeable to reason*. Similarly, a true conclusion is different from truth itself. Moreover, this conclusion of belief can be realized by ‘hypothesis,’ which is the third form of logical inquiry in the Peirceian system, followed by ‘induction’ and ‘deduction.’

Peirce and James regard the relationship between ‘reality’ and ‘truth’ in various ways. For Peirce, meaning should be determined on the basis of ‘effect,’ ‘practical bearing,’ or ‘conception.’ In such a way, it is not only the practical meaning, but also the conceivable and possible meaning that might be realized and generalized in our belief. The realized effect of the belief is the ‘rational purport’ of the generalized idea. As a result, there is a basis for both reality and truth in the process of investigation, typically in the doctrine of science. That is to say, the ultimate goal is the truth, while the represented and applied object is the *real*. Therefore, the notion of perceivable experience and the abstract concepts on the basis of meaning are comparable according to Peirce.

Following the above analysis, Dewey’s understanding of Peirce’s pragmaticism can be characterized as follows:

I. Pragmaticism is a doctrine concerning the meaning, conception, or rational purport of objects.

II. Peirce is less of a nominalist, because he emphasizes habit as well as generalized qualitative experience, rather than any other particular sensible consequence.

III. Peirce emphasizes the method of procedure and the method of tenacity.

IV. Peirce has a more explicit dependence on social factors than has James.

V. Peirce and James are realists, because both them assume that real things have real effects or consequences.

In fact, James’s ideas would not be represented opposite Peirce solely because their thoughts of pragmatism differ. For Dewey, ‘in the literal sense of the word

pragmatist … Peirce is more of a pragmatist than James.' Hence, we may not treat such differences between them as contradictions. In Dewey's reading, Peirce's approach befits the presentation of the idea, while James made additions to the idea and also rendered it more comprehensible. It seems that James regards the real as truth itself, while Peirce regards it as a basic component of truth. Peirce's theory also changed throughout the years. Dewey identifies an important difference between his earlier and later philosophy. He writes:

> [In] his later life he attached less importance to action, and more to 'concrete reasonableness' than in his earlier writing. It may well be that the relative emphasis had shifted. But there is at most but a difference of emphasis. For in his later doctrine, concrete rationality means a change in existence brought about through action, and through action which embodies conceptions whose own specific existence consists in habitual attitudes of response. In his earlier writing, the emphasis upon habits, as something generic, is explicit.[297]

Dewey underlines the importance of habit in Peirce's theory, such as: 'the belief of rule is a habit,' 'habit is an active rule,' and 'every belief is of the nature of a habit.' Furthermore, this important clue as well as the altered meaning of habit in Peirce's development is indeed essential and necessitates careful reconsideration in the pragmatist framework of cognitive science. The aforementioned shift between Peirceian pragmatism and pragmaticism may not only involve the motion to represent the original idea, but also develops the original concept further while considering the James's pragmatism. The shift in Peirceian pragmastism and pragmaticism also takes on a critical approach. Therefore, the relation between action and habit is indeed an essential debate between Peirce and James, though it is important to note that Dewey also plays a role. However, for other pragmatisms, this aspect may not be essential. That is to say, the meaning of action should be carefully treated.

Though action is perhaps not the core focus of pragmatism, it remains one of its

[297] Cf. *idem,* p. 714.

most central components. However, these ideas have been overlooked by the cognitive pragmatists. Both Peirce and Dewey placed an emphasis on practice, but their concept of practice was detached from action. In addition, the meaning of practice for Peirce, who is rooted in Kantian tradition, must be distinguished from that of James, who subscribes to the natural philosophy practiced in ancient Greece.

Furthermore, Dewey distinguishes pragmatism from phenomenalism. These two schools are not contradictory, but simply different ways of knowing the world. From a phenomenalist point of view, 'the richness of phenomena lies in their sensuous quality.' However, the 'sential element' is the obstacle that one attempts to eliminate from the scale of rational cognition. That is also why pragmatism defines the 'generally real' with the help of 'physically efficient': because 'perceivably real' is not sufficient to understand rational cognition, though it may provide an understanding of rational purpose. This aspect functions as a second clue—one that may also be traced to cognitive pragmatism given that 4E cognition is rooted in phenomenology. As a result, Mark Johnson ought to reconsider his understanding of the tensions between various schools instead of simply understanding them as different, isolated ideas, whether similar or contradictory.

Similarly, Johnson's understanding of James and Dewey also warrants reconsideration, in addition to the interpretive retrospection of the basic ideas of Peirceian pragmatism and how they differ from that of James. The position of Deweyan pragmatism as well as that of Peirce has been examined in order to 'define the *real* as something given prior to reflective inquiry instead of as that which reflective inquiry is forced to reach and to which when it is reached belief can stably cling.'[298]

Through Dewey's interpretive lens, I explored the generally overlooked views of Peirce, with respect to both pragmatism and pragmaticism. The former is the initial idea, and the latter is slightly misrepresented and additionally consists of a developed idea regarding James's misinterpretation of the doctrine (hence Peirce's need to re-label his philosophy pragmaticism). During his era, Peirce did not enjoy much influence among

[298] Cf. *idem,* p. 715.

his contemporaries, as should have been the case. Moreover, the misleading views that James advanced extend to the cognitive pragmatism of today. Indeed, James' pragmatism is essential. It influenced psychology and shaped empirical psychology in particular. However, for cognitive science, pragmatism should be treated gingerly. If not, the doctrine may perhaps regress to a form of behaviorism, because cognitive pragmatists continue to conflate action and practice. Although cognitive research may support the study of the mind, from a particular pragmatist point of view, these understandings of science are mostly based on evolutionary theory. However, evolutionism is not at the forefront of today's leading scientific doctrines.[299]

In addition to the ideas of these three protagonists, I find it necessary to briefly touch on the views of two other leading pragmatists, Schiller and Mead. This inclusion will allow us to view another facet of the doctrine of pragmatism and thus broaden our understanding of this school.

4.5 Schiller's humanism

As a major thinker in early pragmatism and, more precisely, one of the major critics of pragmatist thinking, Schiller has been overlooked by cognitive scientists. Despite this fact, his profound and systematic understanding of human nature is comparable to that of James. Schiller underscores the indispensability of human life in pragmatism. This positions him closer to the ideas of Dewey, because Dewey placed equal stress on the importance of human knowledge. Moreover, just as Peirce suggests, Schiller's theory is a combination of James's and his own.[300] Besides, Schiller critiques their ideas thus: 'In Peirce's sense it seems to crave an extension which it has undoubtedly received, and even in Prof. James's account of the matter it is by no means

[299] Seth Crownover has suggested otherwise to me. He points to evolutionary psychology in particular as exemplifying a larger tendency toward explaining all scientific phenomena by reference to evolutionary mechanisms. He argues that despite the fact that some of these new 'evolutionary' subdisciplines are almost entirely speculative in nature, they seem to be gaining momentum—in the popular mind, at the very least.

[300] Cf. Peirce, Buchler (ed.) 1940, p. 272.

easy to make the distinction sharp.'[301]

The problem of pragmatism, as Schiller understands it, is not that it is wrong, but that it has not yet generated any satisfactory explanations of the problem of truth. Truths should have practical consequences. The problem seems to be that neither the reason nor the form of the connection has been formulated in a definitive sense by Peirce and James. In fact, Schiller's view is similar to Jerry Fodor's view that pragmatism is not necessarily false; however, if it is false, its fallacy is a fundamental one. In other words, pragmatism does not provide us with a meaningful definition of the truth condition. What it does tell us in a broad sense is what it means to think intelligently. Since discussions on theories of truth are weakened in pragmatism's discourse, other intrinsic values become the objects of judgment. Therefore, truth is no longer an inquiry; it becomes a realizable object and its realizable forms are multiple. Schiller gives several definitions of pragmatism:

> I. The thorough and methodical recognition of the influence of the purposiveness of mental life on all our cognitive activities.
>
> II. As the conscious application to the theory of knowledge of the teleological psychology suggested by a metaphysical voluntarism.
>
> III. Negatively, as a protest against abstracting from the actual purposiveness of our experience in constructing theories of thought and reality.
>
> IV. As the doctrine that 'truth' are values and that 'realities' are arrived at by processes of valuation, and that consequently our 'facts' are *not* independent of our 'truths,' nor our 'truths' of our 'goods.'
>
> V. That *meaning depends on purpose*.
>
> VI. The meaning of a rule lies in its application.
>
> VII. *A fortiori* that *the* '*truth*' *of an assertion depends on its application*.[302]

The first four definitions are explained in a general sense, while the latter three

[301] Cf. Schiller Apr., 1905, p. 236.
[302] Cf. *Idem*, p. 237.

address logical complexity, explaining the relation between meaning and truth. Schiller's definition of pragmatism reflects the plurality of the concept. Pragmatism is deeply subjective in some respects, but at the same time it pursues a high degree of objectivity. According to pragmatism, the meaning of truth is the realization of actuality and the externalization of meaning. Schiller thus explores what the actuality and meaning may mean from the perspective of human cognition, and explains the motives underlying cognitive activities. It seems that having truth would not only mean expressing this truth; it would also include an explanation of the reasons for possessing and expressing the truth.

Schiller sees the intrinsic difficulty of pragmatism as a tradition. That is, although many pragmatists use the theory to explain the rationality of actions, they usually fail to ask what pragmatism really is. And in fact, pragmatism as a truth-theoretical project is not as valid as it seems. As previously stated, pragmatism does not provide the meaning of truth. Instead, it *defines* meaning *as* truth. In such a way, both meaning and truth may be identified with various applications. However, as Schiller asserts, pragmatism remains where it began: somewhere between philosophical conception and practical application. By contrast, he suggests conceiving of pragmatism in a broad sense. He says:

> Pragmatism then, in this wider sense, refers to the way in which our attributions of 'truth' and our recognitions of 'reality' are established and verified by their working, and sooner or later brought to the definite test, of experiments which succeed or fail, i.e., give or deny satisfaction to some human interest, and are valued accordingly.[303]

According to Schiller, pragmatism rests on observable facts. That is to say, the object of cognition should be perceived in direct and simple ways. Truth need not be explained in such complex ways, as distinct or even as contrary to falsehood, because human nature is plain. 'A full philosophic conscious-ness' as well as a pragmatic

[303] Cf. *idem*, p. 237.

approach is to attain this ultimate centrality of human nature honestly and directly. Schiller understands that pragmatism incorporates aspects of both psychology and epistemology. This feature emphasizes the independence of the change in thinking as well as in cognitive process. It can be explained further: human reason is intrinsically internal, what conscious actions directly realize is not the contents of the mind, but the centrality of human interest. Interest is neutral and frank, but it will be invoked in complex relations between different minds. Therefore, it is proper to say that it is not human *nature* that is complex, but human *relations*. When we want to know other minds, an epistemological tension is invoked. Schillers explains:

> When the epistemological consequences of admitted psychological principles are calmly traced out, it will be seen that pragmatism is inevitable, and must gradually win its way to universal acceptance.[304]

It seems that pragmatism exposes knowledge in the recognition of truth. In this way, both 'psychological interest' and 'psychical satisfaction' are pervasive in the intellectual functioning of cognition. That is to say, it is not a human mind, but rather a private and liberal mind, which sustains our life and enables us be rational, while the fact is that we are reasonable.

Schiller distinguishes humanism as superior to pragmatism. For him, pragmatism is obsessed with 'useless' knowledge,[305] while humanism can revise this knowledge such that it can be of use to us. Humanism reveals the relation between truth and human reason by the guidance it gives with respect to cognition. Just as Dewey suggests, human nature appears only when reasoning occurs, and the essence of reason is reason-seeking. Although this idea is still debatable, some consistent results can be attained at the end. As such, a complete and actual realization of this idea is meaningful and effective. Therefore, according to Schiller, humanism is a truism more essential than pragmatism. It is the former that tells the truth directly, while the latter makes it complex.

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[304] Cf. *Idem*, p. 238.
[305] Cf. Schiller Apr., 1902.

Humanity is comprised of both strength and frailty—the maligned or perverted features underneath the congenitally unsuitable appearances. Thus truth is not indeed an ultimate goal, but a cognitive fruit. Schiller says:

> To be a Humanist there will always be needed a certain whole-souled temperament, odious to the intellectualist, and (because of their mode of life) this will always continue to be rare among technical philosophers, though no doubt in the future the instinctively humanistic nature will be permitted better opportunities of growth than heretofore, even when it finds itself engaged in an academic career.[306]

Schiller also notices the potential conflict between humanists and rationalists, which is a reflection of the more fundamental opposition between humanity and rationality. Humanists admit the frailties of human nature, including the limits of thought as an inner ability. However, these frailties may lead to many possibilities. That is to say, cognition does not manifest itself between the possible and the impossible. Instead, it is better described as the state of grappling with the possible situation of impossibility, and vice versa. More precisely, cognition is capable of representing both the contents of the possible and impossible worlds. When the object of the impossible world is represented as a possible situation—such as a pumpkin chariot pulled by a mouse—such tokens are meaningful, for they represent the object not only through realizing the possibility of the world, but also by realizing its conceivability. In such a way, nothing is impossible, if and only if it is inconceivable. It is in the latter that we locate the exceptional ability of the mind, superior to the minds of other creatures by virtue of this very characteristic.

Schiller underlines the differences in living paradigms between distinct communities. Such analysis of the nature of human experience is also the ongoing goal of cognitive pragmatism in the field of cognitive research. As mentioned above, Schiller's thinking is to some degree a combination of that of Peirce and James. Schiller

[306] Cf. *Idem*, p. 239.

rejects much of the criticism launched against James, which he believes is undeserved. According to Schiller, although there is a significant lack of consistency in James's psychology as a whole, his analysis of the human psyche is valid. James explains the internal linkage between psychological states, such as the will to belief, the teleology of perception and conception, the nature of 'necessary' truth, and the distinction between immediate and discursive knowledge, etc. It is essential that psychical issues are carefully thought out. Schiller found that although most pragmatists will not admit that they are humanists, the tendency of pragmatism towards humanism is nonetheless obvious. At its core, humanism is pragmatism in its broader sense.

According to Schiller, there are two inclinations in the development of pragmatism: one is the '*epistemo-logical method*,' and the other is humanism. Under the challenge of Schiller, pragmatism has been severed from its metaphysical cover and concentrates on questions on human cognition. Thinking per se has no purpose; its only purpose is application. This application may be considered based on science or on ordinary life. These doctrines are different from pragmatism's epistemological and metaphysical approaches. They are rooted in the fundamental nature of human life, attained by 'a special application of a principle which he applies all round, to ethics, esthetics and theology, as well as to the theory of knowledge.'[307] Having said that, Schiller gives an idea of his conception of healthier philosophy: 'For really, if there is to be healthy progress in philosophy, we must have more tolerance, less party-spirit, no cast-iron creeds, and (in a word) no more absolutism.'[308]

Although Schiller critiques pragmatism from a radical view of humanism, neither pragmatism nor humanism are rigid modes of thought. Instead, they are both fundamental forms of philosophical reflection that together form the roots of American thought. Retrospectively, pragmatism is a philosophical trend, and its adherents produced a corpus covering the entirety of philosophy. It tackles all of its most difficult questions and seeks a feasible way of balancing the ideal with the real. On the contrary, humanism is both a philosophical and psychical doctrine. Without careful treatment,

[307] Cf. *idem*, p. 239.
[308] Cf. *Idem*, p. 240.

humanism qua explanation may devolve into humanistic solicitude, embracing the values of solipsism and dogmatism.

Based on this analysis, we can see that Schiller's hybrid approach, standing between pragmatism and humanism, is integral to the doctrine of pragmatism. Peirce, however, rejected Schiller's humanist thought on account of it supposedly being too trivial to undergo further academic scrutiny. He writes:

> Follow Mr. Schiller's brilliant and seductive humanistic logic, according to which it is proper to take account of the whole personal situation in logical inquiries. For I hold it to be very evil and harmful procedure to introduce into scientific investigation an unfounded hypothesis, without any definite prospect of its hastening our discovery of the truth.[309]

According to Peirce, though it may give rise to interesting discussions, the new ideas and rules hypothesized by Schiller are too light to be applied to the definition of truth. A key difference between Peirce, James, and Schiller can be noted from their views on psychology. Both James and Schiller take psychology as a 'genuine science,' whereas Peirce rejects this science (as well as 'a metamorphosis of philosophy').[310] Furthermore, Peirce shares his own position:

> I cannot turn aside into Mr. Schiller's charming lane. When I ask what the interest is in seeking to discover a logical interpretant, it is not my fondness for strolling in paths where I can study the varieties of humanity that moves me, but the definite reflection that unless our hypothesis be rendered specific as to that interest, it will be impossible to trace out its logical consequences, since the way the interpreter will conduct the inquiry will greatly depend upon the nature of his interest in it.[311]

In fact, Peirce does not deny Schiller's contributions. Instead, he merely

[309] Cf. Peirce; Buchler (ed.) 1940, p. 289.
[310] Cf. *idem*, p. 289.
[311] Cf. *idem*, p. 289.

distinguishes Schiller's tendencies from his own. The 'genuine science' studied by Peirce will not be sympathetic to the objectivity of humanism in the positive sense. For Peirce, psychical science is in virtue of 'a critical acceptance of a sifted common-sense of mankind regarding mental phenomena,' therefore, he takes pragmatism as 'critical common-sensism.'[312]

As Peirce sees it, the ultimate goal of science is the search for truth. The method of scientific exploration is the same as that of scientific philosophy, such as pragmatism. What baffles scientists are metaphysical questions, neither the complexity of humanity nor indeed any complex physical relations. Such things may disturb their life, but cannot disturb their mind. Peirce responds to the seven aspects of Schiller's redefinition of pragmatism.[313] According to Peirce, Schiller's logic is based on common-sense. In fact, James is more or less in the same trend. In his own unique way, Peirce distinguishes between 'logical interpretant' and 'emotional interpretant.' He does not overlook the effects of emotional logic, while he discriminately discerns the line of separation to show its difference from logic.

In general, Schiller's criticism of pragmatism is very similar to that of Fodor. Both believe that pragmatist epistemology is out of date. However, it follows from the review of Peirce that Peirceian pragmatism is not an epistemology that aims at ultimate knowledge, it is a way of inquiring about truth. Furthermore, it lays bare the intrinsic problems of the mind. It seems that both Schiller and Peirce take into consideration the limit of human mind, but they interpret its virtue in opposite ways.

4.6 Mead's pragmatism

The pragmatism of George H. Mead is a type of realism heavily rooted in scientific thinking.[314] As a behaviorist, Mead's social psychology enjoys a wide influence.[315]

[312] Cf. *idem*, p. 289.
[313] Cf. *idem*, pp. 287-289.
[314] Cf. Mead 1936; Stuhr (ed.) 2000.
[315] Cf. Strauss 1934.

Mead rejects the view that the sole function of philosophy is to interpret science. For him, philosophy does not merely interpret science—it inspires it to further analyze science propositions. Pragmatism is a realistic philosophy that developed out of the scientific movement.

Mead is sympathetic to the pragmatisms of both James and Dewey, which promote verification of the truth of scientific propositions and hypotheses through examinations of their efficacy. The mind is more than a logical device; it judges truth by testing its coherence and orderliness. The mind is also the creator of the world. The world is therefore the product in the process leading the contents of mind to become more condensed and realistic. All minds share the same general and abstract features. Given humanity's finite character, we cannot perceive the true nature of the world. In this sense, thinking is never perfect. But we can guarantee the coherence of thinking through the form of propositions. In Mead's theory, the development of mathematics and logic is the most important part of science. Contrary to idealists and rationalists that present the world in thought, realists try to uncover the nature of things. He says:

> That is cognition is a process which curious, one wants to know the world; and knowledge is a simple getting of the nature of the world. Its tests lie, from that standpoint, in the product or in the nature of what is known. This is a copy theory of knowledge; one has in his mind the impression of that which exists outside; or one may have a coherence theory such as that to which I have referred above, that which fits into a structure which lies outside.[316]

It seems that Mead's pragmatism may not deny the existence of mental representation because for him, knowledge is a representational system of the outside world. Therefore, from the pragmatist point of view, the content of thinking is also the content of life and living. Cognition is an internal structure that corresponds to the world. According to Mead's definition of intelligence, contents of thought include the continuation and extension of an organism in its environments, which is driven by the

[316] Cf. Mead 1936, p. 344.

evolutionary trend that eliminates the unfit, and also an indication of the realization of the organism's own fate. Humans have to face an environment much more complex than those of animals. They substitute real objects with structured sets of symbols and images, and benefit from higher-level cognition. However in a fundamental sense, the process of life is the process of thinking for the purpose of survival. The practical result is the only criterion of verification, and intelligence is the tool. Mead gives a rich set of explanations with respect to intelligence. For him, intelligence is contained in both thinking and action. He explains further:

> Intelligence consists in the stimulation of those elements which are of importance to the form itself, the selection of both positive and negative elements, getting what is desirable, avoiding what is dangerous.[317]
>
> Thinking is an elaborate process of selecting an elaborate process of presenting the world so that it will be favorable for conduct. Whatever is its later function—that one of knowledge, which is for its own sake—in its earlier phases we have intelligence, and then thought, as lying insides of conduct. That is, the test of intelligence is found in action. The test of the object is found in conduct itself.[318]

According to this definition of intelligence, there is no essential difference between an organism and artificial intelligence. They differ only in degree. Intelligence is a remarkable feature of cognition, and Mead explains intelligence itself as a 'scientific method.' As such, we must inevitably ask a key question: how does life sustain itself? In other words, how can we explain the sustainability of cognition? Mead writes:

> If we look upon the conduct of the animal form as a continual meeting and solving of problems, we can find in this intelligence, even in its lowest expression, an instance of what we call 'scientific method' when this has been developed into the technique of the most

[317] Cf. *Idem*, p. 345.
[318] Cf. *Idem*, p. 345.

> elaborate science. The animal is doing the same thing the scientist is doing. It is facing a problem, selecting some element in the situation which may enable it to carry its act through to completion. There is inhibition there. It tends to go in one direction, then another direction; it tends to seek this thing and avoid that. These different tendencies are in conflict; and until they can be reconstructed, the action cannot go on. The only test the animal can bring to such a reconstruction of its habits is the ongoing of its activity. This is the experimental test; can it continue in action? And that is exactly the situation found also in science.[319]

Mead seems to subscribe to radical naturalism. For him, scientists develop their understanding of nature through the process of inquiry. The scientific enterprise is itself therefore similar to the struggle to survive that all organisms take part in. Science is a universal and neutral concept that all lives use to sustain themselves with. While in the perspective of problem-solving, the scientific method is necessarily essential for performing activities. Moreover, Mead explains action as playing not an essential, but a functional role. Action thus is an experimental test in order to see if modification and reconstruction are workable. According to Mead the most stable form of behavior is 'habit.' This idea is similar to that of Peirce. That is to say, it is habitual action that serves as the most versatile and adaptive behavior in addition to cognitive conduct.

While Jerry Fodor's objection to behaviorism is mostly due to his disagreement with pragmatism, in Mead's analysis, one can see that his understanding of the mind does not result in a more complete or workable worldview, but instead concentrates on problem-resolving. That is to say, both representation-oriented and action-oriented cognitions are needed to face the problem of life. This is indeed the idea introduced later by Engel et al. in cognitive research, which is an advance on that of Mark Johnson. It seems that Dewey is also invoked in their approach, because he underscored the functional role of representation as well, as we have seen previously. Mead further traces the origins of pragmatism to two main sources: the one is behavioristic psychology, and the other is science. He explains:

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[319] Cf. *Idem*, p. 346.

> The sources of the pragmatic doctrine are these: one is behavioristic psychology, which enables one to put intelligence in its proper place within the conduct of the form, and to state that intelligence in terms of the activity of the form itself; the other is the research process, the scientific technique, which comes back to the testing of a hypothesis by its working. Now, if we connect these two by reasoning that the testing in its working-out means the setting-free of inhibited acts and processes, we can see that both of them lead up to such a doctrine as the one I have just indicated, and that perhaps the most important phase is: that the process of knowing lies inside of the process of conduct. For this reason pragmatism has been spoken of as a practical sort of philosophy, a sort of bread-and-butter philosophy. It brings the process of thought, of knowledge, inside of conduct.[320]

The above statement contains very important ideas for embodied cognitive science and even in a more general sense for 4E cognition. It can be found that Mead, as a social behaviorist, promotes combining the scientific method with social resources. In such a way, pragmatism is at the very core of this new methodology, which is a pragmatic one in multiple ways. Here, it can be found that Mead mentions both notions of action and practice, both of which play functional cognitive roles. That is to say, the meaning of cognition can be realized by verifiable externalizations of the mind. In this sense, Mead's pragmatism is akin to Dewey's instrumentalism. Mead writes:

> What selection, and its development into reflective thought, gives us is the tools we need, the instruments we need to keep up our process of living in the largest sense. Knowledge is a process of getting the tools, the instruments.[321]

Relative to several other important pragmatists, both Dewey and Mead are popular in the pragmatist movement in cognitive science, and that of Engel et al. in particular. Based on the above clarification of the central ideas of these five pragmatists, cognitive

[320] Cf. *Idem*, p. 351.
[321] Cf. *Idem*, p. 351.

pragmatism can be further divided into two streams: one being radical, and the other more moderate. Johnson is in the former camp, whereas Engel et al. are in the latter. The difference is in the various interpretations of 'representation.' Representation, in any sense, has been rejected by the former and replaced by action, while being redefined and placed in cooperation with action by the latter. As a functional role, representation should not be removed from the structure of the mind. Therefore, a more proper form is needed to capture the features of both representation and action. In my view, this form would be habit.

Mead's realism is influenced by both James's and Dewey's analyses of the pragmatist methodology and their emphasis on practical significance. This reflection upon science is more profound than that of James and Dewey. The continuity of scientific concepts and the tradition of community is contained in a series of concepts and beliefs. These concepts not only consist of knowledge, but can serve as common beliefs in a quasi-religious sense. In addition, both Peirce and Mead underline 'habit' which is also underscored in the cognitive research of Engel et al. In this way, the reflection upon the relation between philosophy and science is easier to understand than the Peirceian system. However, Mead fails to make sufficient mention of Peirce.

Through the lens of Charles W. Morris, who played an important role in the establishment of logical positivism, we can illustrate more clearly the relation between Peirce's and Mead's pragmatism. The former is metaphysical idealism, while the latter is empirical naturalism. Furthermore, the ideas of Dewey are more akin to empirical naturalism, whereas James embraces a radical form of empiricism. Dewey's naturalism and logical doctrines have had a wide influence on ethics, as well as religious and political theory. James's thought, on the other hand, approaches that of Schiller; both admit the intrinsic complexity of human nature. In recent years, such theory is gaining more and more awareness among many philosophers of science, especially in logical empiricists' defense of operationalism. In fact, this evolves into a new vein of thought called conceptualistic pragmatism,[322] which perhaps becomes the prototype of

[322] Morris mentions the work of Ralph Barton Perry, who is also an important interpreters of pragmatism. However, we will not introduce his interpretation.

'concept pragmatism' that is critiqued by Fodor.

Morris's semiotics and realist stance lay within the broader tradition of pragmatism. For Morris, the major difficulty of pragmatism is the lack of substantial content. In Morris's era, namely the 1940s, ideas such as empiricism abounded and influenced the extensive logical tradition, developed theories of value, comprehensive formulations of ethics and social philosophy, detailed theories of mind, and minutely elaborated cosmological models. Pragmatism has had a significant influence on every one of these fields and sub-disciplines. As one of Mead's students, Morris is strongly influenced by Mead's pragmatism, interpreting both Peirce's and Mead's pragmatism very differently. He says:

> Peirce shows more the mentality of the traditional metaphysician; Mead writes more as a scientist. Peirce discusses fully the doctrines of pragmatism and the empirical theory of meaning, but often fails to live up to his own methodological precepts; Mead does not write much concerning these topics, but his thinking moves more firmly within a pragmatic and empirical orbit.[323]
>
> Peirce's writings show strongly this metaphysical tendency: truth, reality, meaning, probability, value are all defined in terms of the 'long run.' Mead's thinking is by contrast contextual or situational; he defines all of these terms in reference to specific contexts and situations.[324]

The theoretical distinction between the philosophies of Mead and Peirce should now be clear. As a matter of fact, the unduly metaphysical tone of Peirce's theory acts as a barrier to its comprehension and ultimately to its acceptance. Reading Peirce's theory is like going on an endless meandering journey that has no specific point of entry or end. On the contrary, Mead's view approaches more closely the beneficial pragmatism of embedded cognition. Situated cognition still has the potential to inspire contemporary cognitive science. Although Morris' view of Peirce is critical, two or

[323] Cf. *Idem*, p. 112.
[324] Cf. *Idem*, p. 113.

three important clues[325] may be uncovered.

First, as Morris says: 'Mead's account is thus more naturalistic than Peirce's, and the principle of discontinuity is treated with as much respect as the principle of continuity.' In fact, continuity is a well-known general topic of pragmatism. James and Dewey also cite it as an important principle.

Moreover, Johnson takes the principle of continuity as the key to explaining the holism of mind-body and organism-environment transformation. In such a way, cognition is a continuous and enactive process, and indeed the mark of life. Moreover, evolutionary theory is indeed a highly useful concept within pragmatism. Indeed, pragmatism is the first philosophical school that can trace its influence directly back to evolutionism.

Secondly, Morris disagrees with Peirce on his objective idealism in explaining the objectivity of mental habit. According to Peirce, thinking is the operation of reason, as 'inveterate habits' can become 'physical law.' However, as Mead asserts, the continuity of thinking is not sufficient for it to act as the basis of mind. Therefore, he promotes Mead's conception.

Mead admits that the 'mind is a particular form of processes which everywhere occur.' He also insists more sharply on the biological, social, and linguistic preconditions of the mind, with the end result that the term 'mind' is not extended so widely. In fact, according to Mead, 'mental processes are not assigned throughout nature, and mind, though one active factor in the organization of nature, can in no sense be said to be the general source of existence.' This idea is also a beneficial and illuminating concept for embodied cognitive science.

4.7 Summary

In this chapter, I did not introduce the five leading variants of pragmatism in a

[325] Cf. *Idem*, pp. 113-114.

complete sense. What I have tried to highlight has been their essential differences. From this, several conclusions can be made. First of all, each pragmatist has his own ideas, and no one thinker approaches pragmatism in exactly the same way. Therefore, cognitive pragmatists should be more careful to note the difference within the school itself. The most important difference for the purposes of this dissertation remains the one between James and Dewey. Second, there are still many beneficial ideas for 4E cognition that can be discovered in classical pragmatism. Third, there is also another possibility for representationalists and cognitivists: Some pragmatist thinkers, such as Peirce, Dewey and Mead, and especially Peirce, have also acknowledged representation as an important form of cognition. Fourth, the most important result of this retrospection of these classical ideas of pragmatism is as follows: we can see that 'action' and 'practice' are important topics in pragmatism, but not so essential as to define the nature of the idea. Action plays a functional role in justifying the meaning of thought. Instead, the most crucial challenge for pragmatism is to explain the tension between reality and truth, and then explain the features of meaning and how to find meaning in reliable and recognizable ways.

Although five leading pragmatists' views have been presented, the most important ideas should be explored continuously. In discussing their different interpretations of the ideas, such principle pragmatists refer to the ideas of Royce, Spencer and many excellent thinkers in other domains, and even on other continents, such as German, French and Scottish thinkers who have not been sufficiently discussed in this examination. In fact, those formative ideas of pragmatism yields more basic meaning, and they are broadly admired by pragmatists. I will not discuss these ideas here. Instead, I will discuss the pragmatism of Peirce, the founder of this idea, because his ideas have gone overlooked for far too long by both cognitive pragmatists and anti-pragmatist cognitivists. This is the most pressing issue for cognitive pragmatism, with the potential to finally demonstrate whether pragmatism serves as a 'cure' or a 'cold' for cognitive science. The question of whether or not a third possibility exists will function as the final question of this dissertation.

Chapter Five

A Revisionist Trend: the Pragmaticist Drug for the 'Pragmatist Cure' and 'Pragmatist Cold'

The historical and theoretical retrospectives of the formative ideas of pragmatism found in Chapters Three and Four clearly show that *truth theory* is the central element of pragmatism. More precisely, pragmatism as a philosophical discourse is mainly composed of inquiries into truth; it distinguishes truth from reality, as multitudes of meanings serve as the bridge. It is important to note that this aspect of truth-theoretical discussion has gone almost completely ignored by contemporary cognitive pragmatists, who instead highlight 'action.' However, Peirce distinguishes 'rational cognition' from 'rational purpose' in order to highlight the essence of cognition; while this approach has been overlooked, cognitive pragmatists have also overstated the role of action.

This partial representation and reinterpretation of pragmatism is inevitable. First of all, pragmatism per se is not clearly defined, which is partly due to the complexity of the theory, and partly because of the various factions within the camp of pragmatism. Second of all, the pragmatist views espoused by the cognitive scientists remain prematurely implemented. Most cognitive pragmatists have not engaged in sufficiently detailed research on the essence of pragmatism in order to better understand what pragmatism is. Instead, they tend to cherry-pick the parts that best serve their own theoretical purposes and ignore other equally important aspects of the theory.

The ideas of C. S. Peirce in particular have been deliberately ignored in the cognitive science community. It is rather surprising that as the undisputed 'founder' of pragmatism, Peirce is rarely mentioned in the writings of cognitive scientists. Sometimes, he is even not classified as a pragmatist. There is in fact a more general lack of interest in Peirce's theories; and although there have been some more recent attempts to advance further research on Peirce's contribution to the field, these attempts

should have taken place much earlier. But it seems to me that the reintroduction of a Peirceian approach could make all the difference in the field. More precisely, it has the potential to launch a new approach, and I am indeed working on just this sort of approach with *cognitive neoclassical pragmatism*. Cognitive neoclassical pragmatism combines cognitive pragmatism with Peirceian pragmaticism and is therefore distinct from *cognitive pragmatism*. Unlike the distinction between the 'pragmatist turn' and 'pragmatic turn'—as suggested by Jean-Michel Roy—I argue for a 'pragmaticist turn' guided by Peirceian pragmatism.

In turn, I am confident that the pragmaticist turn will have significant and beneficial implications for cognitive science. My intention is not to simply advocate second-generation cognitive science over its former generation. The first and second generations do not necessarily contradict and are not exclusive to one another. Given that Johnson's concept casts too wide a net to bear fruitful analyses and Fodor's attitude toward pragmatism is unduly biased, it is necessary to provide a balanced and refined discussion of this concept, and in turn to reassess the nature of cognition itself.

Generally, pragmatism offers a naturalistic explanation of the mind. For a pragmatist, being natural is identical to being real: the significance of practice, in its most direct sense, is to grasp real belief. Peirce once called himself a 'scholastic realist.' This term captures his stance as well as his insights in both philosophy and science: a hermitic, profound, and sometimes unfathomable thinker who conceived ideas generations ahead of his time. However, due to this visionary quality, interpreting his thoughts has never been a simple task. Rather than constraining himself to an inert philosophical system, Peirceian pragmatism is a path of active philosophizing inquiry.

Peirce reminds us'not [to] block the way of inquiry,'[326] warns us 'not [to] pretend to doubt in philosophy what we do not doubt in our hearts,'[327] and encourages us when he says that 'darkness is merely the defect of light, so hatred and evil are mere imperfect stages of love and loveliness.'[328]

[326] Cf. Peirce; Buchler (ed.) 1940, p. 54.
[327] Cf. *Idem*, p. 229.
[328] Cf. *Idem*, p. 361.

In short, the core of his philosophy is a way of thinking and inquiring, and pragmatism is the idea that assists us in philosophically recognizing the world. In France, other than the works of Pierre Steiner, there exist very few dedicated discussions on Peirce. The revival of Peirceian theory should be clearly defined and distinguished from other perspectives. As such, my approach will in part consist of revising the current domain, and its goal is twofold.

First of all, I will introduce the Peirceian approach into the current framework of cognitive pragmatism based on the works of Johnson and Engel et al. in order to reinforce the structure of cognitive pragmatism.

The second goal is an expansion of the first. That is, I will try to distinguish between the accurate representations and misrepresentations of pragmatism that have taken place in cognitive science. The debate between Johnson and Fodor is one such conflict. According to my analysis in Chapter Two, this debate can be traced to the contradiction between *action*-oriented theory and *representation*-oriented theory, as advocated by Johnson and Fodor respectively. However, both parties neglect Peirce's perspective. Therefore, I will introduce a Peirceian approach into the debate in order to see whether this conflict could be resolved. There is little doubt that Peirceian philosophy is helpful for a more comprehensive understanding of both the cognitive and embodied mind.

5.1 Peirce and 'embodied mind'—A reinforcement for the 'pragmatist cure'

In this section, I will compare Peirce's pragmatist view on cognition with Johnson's embodied cognitive science. First of all, I will attempt to show that Johnson draws inspiration not only from James and Dewey's pragmatism, but also, in a more implicit sense, from that of Peirce. On the basis of this argument, I will fit Peirceian views into the argumentation of the seven topics of cognitive pragmatism. Next, I will post a Peirceian response to the idea that 'action is cognition.' Moreover, I will develop

action-oriented cognitive pragmatism into a *habit*-oriented cognitive pragmaticism.

5.1.1 Naturalistic methods of the study of the human mind

A less radical form of naturalism can also be found in Peirce's theory, which proffers more robust explanations than those of James and Dewey. As a natural realist, Peirce explores the scientific basis for philosophy. From the point of view of a pragmatist, the sciences are regarded as 'useful arts.'[329] Seen through utility, the meaning of science and philosophy converges. Philosophy is a progressive inquiry that shares with the scientific method the methodologies of observation and verification. One may say that pragmatism is the most scientific philosophy there is.[330] It can be said that the pragmatist method is a combination of both observation and introspection. In this sense, metaphysics is inscrutable because its objects are imperceptible.[331] For Peirce, metaphysics is a highly abstract science. In fact, many pragmatists are indeed involved in this tradition, such as René Descartes and Immanuel Kant. In this way, Peirce founded a philosophical tradition for scientists and explains:

> All pragmatists will further agree that their method of ascertaining the meanings of words and concepts is no other than that experimental method by which all the successful sciences (in which number nobody in his senses would include metaphysics) have reached the degrees of certainty that are severally proper to them today; this experimental method being itself nothing but a particular application of an older logical rule.[332]

This pragmatist methodology is inherent within a functioning terminology of specific concepts. Pragmatism necessitates a well-functioning way of thinking. In this way ascertaining the meaning of a concept is akin to realizing an experimental certainty.

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[329] Cf. Peirce; Buchler (ed.) 1940, p. 60.
[330] Cf. *idem*, p. 310.
[331] Cf. *idem*, p. 23.
[332] Cf. *idem*, p. 271.

This experimental method also befits the old way of thinking, such as logic. In fact, everyone intends to be logical, but our understandings of logic and also that of science often yield different kinds and levels of knowledge. Regarding this difficulty, if the definitions of logic and science are too rigid, most of us will lose the chance to use these persuasive resources. On the contrary, if the definitions are too flexible, they will be used carelessly. Therefore, human understanding is indeed difficult to realize.

On the topic of human understanding, Johnson proposes a very open approach in order to explore the richness and complexity of human cognition.[333] However, his approach invokes a certain linguistic and psychological dimension that perhaps overlooks the essence of cognition that rationality is an independent capacity. For Johnson, rationality is an emergent phenomenon of human experience. Furthermore, from Peirce's perspective, human understanding is also involved in human experience, but this experience is specialized. Peirce explains the methodology by reference to a particular community: scientist-philosophers.

The differences between Peirce's 'practical man' and 'scientific man' are not immediately evident. That is to say, they seem externally indistinguishable, because their distinction is internal. Peirce hence proposes hypotheses about the personalities of the scientific men in order to analyze the nature of their professions. Practical men have a distinct 'purpose,' whereas scientific men have a distinct 'attitude.' According to the former, a valuable result is more important than the inquiry of truth itself. By contrast, the inquiry of truth itself is the goal of the latter. This difference is essential. Through the lens of practical men, their work is 'building.' For scientific men, their work is 'architecting.' On this topic, James and Peirce may adopt different views. For Peirce, truth itself is the goal of our practice. James, however, takes meaningful results to signal the value of truth. In this sense, Peirce is more like an idealist, and James is a radical realist. However, the fact is that truth is always clearly represented by every pragmatist. Truth is difficult to completely see, instead, only can be seen as clearly as possible. The scientific method can add to the certainty of belief. Peirce explains:

[333] Cf. Johnson 2007.

> A scientific man must be single-minded and sincere with himself. Otherwise, his love of truth will melt away, at once. He can, therefore, hardly be otherwise than an honest, fair-minded man. True, a few naturalists have been accused of purloining specimens; and some men have been far from judicial in advocating their theories. Both of these faults must be exceedingly deleterious to their scientific ability. But on the whole, scientific men have been the best of men. It is quite natural, therefore, that a young man who might develop into a scientific man should be a well-conducted person.[334]

According to Peirce, both natural science and metaphysics invoke *morality*. This satisfactory condition depends on verification in addition to a comprehensive understanding of oneself. Therefore, it is neither science itself, nor philosophy itself, but rather the 'scientific art' that is advocated in pragmatism. Peirce counts both metaphysics and logic among the domains of philosophy, and they are positive sciences. In order to explain this positive perspective, experience is not enough to define the truth, but can be used to prove the reality of the truth. Peirce defines the features of metaphysics and logic in accordance with Comte's classification of science:

> Philosophy is *positive science*, in the sense of discovering what really is true; but it limits itself to so much of truth as can be inferred from common experience.
>
> Philosophy is divided into a. Phenomenology; b. Normative Science; c. Metaphysics.
>
> Normative science distinguishes what ought to be from what ought not to be, and makes many other divisions and arrangements subservient to its primary dualistic distinction.
>
> Normative science has three widely separated divisions: i. Esthetics; ii. Ethics; iii. Logic.
>
> Metaphysics seeks to give an account of the universe of mind and matter.
>
> Science of Discovery is either, I. Mathematics; II. Philosophy; or III. Idioscopy.
>
> Idioscopy embraces all the special sciences, which are principally occupied with the accumulation of new facts.

[334] Cf. *idem*, p. 44.

> Idioscopy has two wings: a. the Physical Sciences; and b. the Psychical, or Human Sciences. The Psychical Sciences are: a. Nomological Psychics or Psychology; b. Classificatory Psychics, or Ethnology; c. Descriptive Psychics, or History.[335]

Given the pragmatist's conception of science, a proper place may also be found for 'cognitive science.' It can be regarded as a 'psychical science' that benefits the research of other domains. For Peirce, psychical science is not unlike the human sciences. This is also a feature of cognitive science: both are interdisciplinary and can benefit from new facts and discoveries of various sorts. In addition to Comte's classification, Peirce defines the domain of science as containing two forks: theory and practice.[336] Theoretical sciences pursue the inquiry of truth whereas practical sciences serve daily life. Moreover, the definition of idioscopic as well as the special sciences is also similar to that of cognitive science.[337] Peirce explains:

> That is, the special sciences, depending upon special observation, which travel or other exploration, or some assistance to the senses, either instrumental or given by training, together with unusual diligence, has put within the power of its students. This class manifestly divides itself into two subclasses, the physical and the psychical sciences; or, as I will call them, physiognosy and psychognosy. Under the former is to be included physics, chemistry, biology, astronomy, geognosy, and whatever may be like these sciences; under the latter, psychology, linguistics, ethnology, sociology, history, etc. Physiognosy sets forth the workings of efficient causation, psychognosy of final causation. But the two things call for different eyes. A man will be no whit the worse physiognosist for being utterly blind to facts of mind; and if we sometimes find observation in a psychognosist, it will, unless by exception, be found not to be of a purely physical fact.

It is clear that in Peirce's system, the physical sciences/physiognosy and the

[335] Cf. *idem*, pp. 60-62.
[336] Cf. *idem*, p. 66.
[337] Cf. *idem*, pp. 66-67.

psychical sciences/psychognosy are involved tensions; mental and physical properties are difficult to identify separately, because they share a complex relationship. Akin to other naturalists, Peirce explains:

> The cloudiness of psychological notions may be corrected by connecting them with physiological conceptions. Feeling may be supposed to exist wherever a nerve-cell is in an excited condition. The disturbance of feeling, or sense of reaction, accompanies the transmission of disturbance between nerve-cells, or from a nerve-cell to a muscle-cell, or the external stimulation of a nerve-cell. General conceptions arise upon the formation of habits in the nerve-matter, which are molecular changes consequent upon its activity and probably connected with its nutrition.[338]

Peirce challenges the recognizable tension between the content of concepts and the content of experiments, particularly in the domain of epistemology, which has yielded the philosophies of both mind and science. From this comprehensive perspective, the experiences of scientists are embodied in their conceptualization of the objects of their experiments. That is to say, their personal limit is also the limit of their work. In such a way, the naturalizing process of the inner world is inseparable from the conceptualizing process of the outside world. It is the scientific men that work between the two worlds. However, they may be less conscious of which habit would be the most viable in confirming reality and in seeing the truth of nature as clearly as possible. Peirce found it and explains:

> We have, by the application of our rule, reached so clear an apprehension of what we mean by reality, and of the fact which the idea rests on, that we should not, perhaps, be making a pretension so presumptuous as it would be singular, if we were to offer a metaphysical theory of existence for universal acceptance among those who employ the scientific method of fixing belief.[339]

[338] Cf. *idem*, p. 321.
[339] Cf. *idem*, p. 40.

Perhaps according to every pragmatist, it is not the mere knowledge, but rather the conceptualizing form and process that are important for us. We can learn from other's concepts in a realizable manner, should also in a clarified and recognizable manner. Therefore, it is important for us to discover how to recognize the meanings of those scientific concepts in addition to understanding the scientific knowledge itself. For Peirce, concepts 'owing to their great importance in philosophy and in science, [which] require attentive study are generality, infinity, continuity, diffusion, growth, and intelligence.'[340] Thus, Peirce suggests a way to find the truth from a metaphysical perspective, chosen by scientists themselves. In this perspective, *real* is understood as equivalent to *natural*. He explains:

> Our minds having been formed under the influence of phenomena governed by the laws of mechanics, certain conceptions entering into those laws become implanted in our minds, so that we readily guess at what the laws are. Without such a natural prompting, having to search blindfold for a law which would suit the phenomena, our chance of finding it would be as one to infinity.[341]

The Supreme Being, or any other beings, are all considered meaningful from the point of view of the pragmatist.[342] It is also essential that we find the way to realize the insufficiently perceptible, but real existence, such as that of dinosaurs. However, the realitistic perspective by which we may arrive at knowledge of dinosaurs may not be directly or definitively justified. It is representable and the recognition of the object may multiply and be critically realized. Peirce says:

> The observation of facts has now taught us that the ego is a mere wave in the soul, a superficial and small feature, that the soul may contain several personalities and is as

[340] Cf. *idem*, p. 80.
[341] Cf. *idem*, p. 317.
[342] Cf. *idem*, pp. 375-378.

> complex as the brain itself, and that the faculties, while not exactly definable and not absolutely fixed, are as real as are the different convolutions of the cortex.[343]

The mental and physical properties involved are nevertheless different complex, overlapping systems. Yet, their complexities differ. Therefore, we cannot simplify mental complexity with the same degree of the clarity that the discipline of physics is capable of attaining. This hybridized complexity cannot be identified. Peirce saw this complexity in the cortex, even without the help of the neuroscience that is being advocated by cognitive scientists. Peirce would neither deny the composition of the brain nor the functions of mind. Accordingly, philosophers and scientists methodologically assume comprehension in order to understand and explain 'reality.' The nature of this epistemology is pragmatism. On the way to truth, the externalization of truth may be clarified in reliable ways, regarding to multiple realistic methodologies.

Particularity is not essential, but clarity is. Descartes, regarded knowledge as an independent domain separate from the realm of physics. In the former we see the world through the lens of fact, while in the latter we know the world through the lens of belief. Because of the independence of the knowing state, everything is approached with skepticism.[344] That is to say, knowledge itself must also be subject to doubt. Therefore, the nature of knowledge is not to obtain definite knowledge, but only a definitively clear state of knowing and fixating on belief. In such a way, both thought and experience as represented by idealism and empiricism can be regarded as the contents of belief. Peirce defines the state of habit as both a believable and performable state, and explains habit as well as the growing tendency of nature. Peirce explains:

> If we are to define science, not in the sense of stuffing it into an artificial pigeon-hole where it may be found again by some insignificant mark, but in the sense of characterizing it as a living historic entity, we must conceive it as that about which such men as I have described busy themselves. As such, it does not consist so much in knowing, nor even in 'organized

[343] Cf. *idem*, p. 52.
[344] Cf. *idem*, p. 38.

> knowledge,' as it does in diligent inquiry into truth for truth's sake, without any sort of axe to grind, nor for the sake of the delight of contemplating it, but from an impulse to penetrate into the reason of things.[345]

A metaphysics-oriented truth can be shared between philosophers and scientists. Furthermore, the relation between science and philosophy is similar to familiar numbers. Peirce has in fact, described this closed relationship. He writes:

> Science and philosophy seem to have been changed in their cradles. For it is not knowing, but the love of learning, that characterizes the scientific man; while the 'philosopher' is a man with a system which he thinks embodies all that is best worth knowing. If a man bums to learn and sets himself to comparing his ideas with experimental results in order that he may correct those ideas, every scientific man will recognize him as a brother, no matter how small his knowledge may be.[346]

Unfortunately, this kinship is overlooked in the domain of cognitive science, which should take full charge of developing the tradition of both philosophers and scientists. In this community, the people share the same methodology, and respect others' differences. Therefore, a proper way to put forth a critique is not to resort to an 'anti-' or 'non-' response. Differentiation should first identify the theoretical problems in the domain, which should be divorced from all confusion and contradiction.

Peirce asserts that the 'scientific attitude' in addition to the 'scientific method' could be performed in any domain, and that the epistemological perspective should not be accepted at face value. This limitation involved in the scientific work has been clearly diagnosed in the work of Fodor. Although he overlooks the most essential idea of pragmatism. Epistemology is not an unfortunate element of pragmatism, but rather the realistic perspective of every cognitive state. According to Peirce, 'everybody uses the scientific method about a great many things, and only ceases to use it when he does

[345] Cf. *idem*, p. 42.
[346] Cf. *idem*, pp. 42-43.

not know how to apply it.'[347] Fodor indeed harbors a similar viewpoint but from a negative rather than positive conception of pragmatism. For Fodor, the scientific method consists of the following: 'Try not to say anything false; try to keep your wits about you.'[348]

Consequently, Peirceian pragmatism is a very special case that both Johnson and Fodor should consider carefully in relation to the theories of ETM and RTM.

5.1.2 Non-reductive explanations of mental events

Pragmatism is not a single-level reductionist project explaining the intrinsic properties of mental events. Johnson thus introduces pragmatism with an eye to providing multiple interrelated layers of explanation through the use of diverse empirical methods intended to explain the richness of human understanding, while mental events are considered irreducible.

Humans are rational animals not only because we can think, but because we are able to give reasonable explanations via complex thinking. In Dewey's and James's approach, the rich and real experiences form the human being as a biological and cultural matrix. Therefore, human cognition includes embodied meaning and thought. In this sense, cognition is not only the representation of the external world; it also has the ability to sustain positive reactions. Similar to James and Dewey, Peirce also addresses these fundamental questions, tending to underline the complexity and richness of human experiences and the irreducibility of mental events.

According to Peirce, experience is the object of thought as well as the main source of knowledge. Sensation is the content of the experience. Sensation may involve confusion, because there exists hallucinations, delusions, superstitions, and indeed fallacies of all kinds in the experience of sensation. The fact is perhaps that these differences in perceptual experience are part of our common and direct experience. That

[347] Cf. *idem*, p. 19.
[348] Cf. Fodor 2008, p. 4.

is to say that our experience encompasses not only 'sense-perception,' but also includes the entire range of mental products in the form of a comprehensive understanding, which is perhaps not clear-cut. Our experience is moreover the overall understanding of the qualities of things, in which all experience may become references to our knowledge. From within the framework of Peirceian logic, abnormal sensations are misconceptions of sensational objects, but the sensations themselves are usually real and credible.[349] In order words, practical knowledge yields tacit knowledge.

What Peirce seeks to explain is not sensation, but the objects of sensation. He emphasizes the importance of the *changes* in perception during the process of cognition. Perception is the judgment of the states of objects. Thus, the shift in perception is a developing event. Our experience is an overall understanding of such a process. For example, when listening to music, we are not likely to perceive every note separately; instead, we always perceive the overall variation of these individual notes collectively in the forms of harmony and dissonance. This comprehensive mode of cognition is indicative of a higher level of intelligence.[350]

In general, there is no such thing as absolutely certain knowledge. Knowledge is a continuous expansion, also dependent on the development of ideas. For Peirce, instead of acquiring knowledge through sensations, we acquire knowledge of the world by experiencing it. The objects of experience are much richer than those of sensation. The former is a process, while the latter is a state. Our experience is involved in lifelong routine and 'life is a train of thought.'[351] Each individual event is not merely repeatable in the life stream of experience. Peirce also underlines the tension between shock and *resistance*, whose relationship is similar to the dialectic tension between doubting and believing.

According to Peirce, the actual world is not identical to any idealized world. The actual world is only a fragment of the ideal world composed of various sensible experience. Although facts cannot be changed retrospectively, they should be

[349] Cf. Peirce; Buchler (ed.) 1940, p. 377.
[350] Cf. *Idem*, pp. 88-89.
[351] Cf. *Idem*, p. 249.

nevertheless improved and critiqued during the ongoing process of life. Somewhat independent of the real world, every proposition can be made and be further justified in our ideal world. Thus, the contents of thought would be converted into value judgments regarding the real world in order to guide meaningful practices.

In the experiential world, the flow of time has a single direction. What has happened cannot be changed. Thinking, too, is an irreversible process in which choice is involved in every step. When inquiring into why an event takes place, one tends to give an answer that is acceptable to oneself rather than impartially reviewing one's entire thought process. Until one's thoughts are explicitly expressed, there are always complications in one's mind. It seems that the mind, or more precisely, every organism and machine is capable of thinking—and their minds may possess hide-ability as one of its intrinsic features. Such a feature enables us to hide a multitude of the inexplicable or indistinct perspective of our thoughts in the process of thinking, or even in chaotic states, even ideas.

For Peirce, external forces are disturbances in our rational thinking.[352] He believes that thinking should be an entirely rational activity rather than an intellectual one. Peirce's philosophy of mind and his moral philosophy are closely related in the sense that morality is not merely ethics in narrow sense, but also consists of the self-control of the mind and internal restraints on our ability to think.[353] According to Peirce, human nature is extremely complex and multifaceted. He thus presents three types of people: artists, opportunists, and thinkers. Artists create by inspiration; opportunists practice and 'carry on the business of the world' respecting nothing but power; while for the thinkers, reason is the tool, and the inner law is the standard. He explains:

> For men of the first class, nature is a picture; for men of the second class, it is an opportunity; for men of the third class, it is a cosmos, so admirable, that to penetrate to its ways seems to them the only thing that makes life worth living.[354]

[352] Cf. *Idem*, p. 47.
[353] Cf. *Idem*, p. 44.
[354] Cf. *Idem*, p. 42.

It is interesting to see that Peirce intends to explain everything in a *triadic* dimension. In this sense, mental relations are interpreted rather than reduced. In his philosophy, Peirce favors proposing *hypotheses* for inquiry rather than the methods of *deduction* and *induction*. The triadic relation is a typical mode of inquiry, so much so that the interpretation of every triadic relation also yields to other triadic relations. It seems to Peirce that there are essential differences between what to think and how to think. Thinking is also a form of inquiry. In addition to this triadic dimension, one also finds a dualistic tendency in his distinction between the actual world and the world of imagination. The actual world is a world of sensation and experience, while the world of fancy is representable and composed of ideas that can never be totally actualized. Then in what sense does Peirce make such a dualistic claim? Does this view sever the continuity between body and mind? These are questions that should be recognized as highly relevant for Johnson's research.

5.1.3 Non-dualistic theory of mind

Johnson's cognitive pragmatism strongly rejects dualism. One typical manifestation of dualism is that of mind and body. For cognitive pragmatists, the mind and body are inseparable. The mind within an organism is not like the mind in a machine, but rather an embodied mind. Johnson opposes every dualistic attempt to draw a line between mental and material. He promotes the non-dualistic notion of enaction taken from Varela et al., and at the same time advocates Dewey's *experiential transaction* in order to account for a holistic understanding of the mind/body problem. According to cognitive pragmatism, cognitive structures correspond to sensorimotor patterns. Mental capacities are independent of representation; our cognition does not presuppose any distinction between the internal and external worlds. Johnson thus highlights Dewey's idea of *continuity* and uses it to explain the complex and irreducible

relations of the qualia involved in transition. The principle of continuity states that all activities are continuous; activities on different levels can be explained as parts of a continuous whole. Thus, there is no rupture between each of the elements. Akin to such views endorsed by James and Dewey, we may find that Peirce also emphasizes the principle of continuity. Peirce introduces the notion of continuity in his paper 'Some consequence of four incapacities'[355] in 1868. He writes:

> In short, the Immediate (and therefore in itself unsusceptible of mediation — the Unanalyzable, the Inexplicable, the Unintellectual) runs in a continuous stream through our lives; it is the sum total of consciousness, whose mediation, which is the continuity of it, is brought about by a real effective force behind consciousness.

The idea of continuity is the most representative viewpoint of pragmatism. This way of thinking may be sometimes straight and smooth, sometime devious and rough, but it is nevertheless truncated. Further, in an 1892 paper entitled 'The law of mind,'[356] Peirce develops the notion into a concept that he calls 'synechism.' He says:

> Logical analysis applied to mental phenomena shows that there is but one law of mind, namely, that ideas tend to spread continuously and to affect certain others which stand to them in a peculiar relation of affectibility. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas.[357]

Peirce regards continuity as a component of truth. That is, continuity belongs to an inexplicable state of immediacy and 'is nothing but perfect generality of a law of relationship.'[358] The continuity of thought is an intrinsic tendency of the mind that creates a sustainable effect; 'the doctrine of continuity is that all things so swim in continua.'[359] This perspective seems to bolster both the communicability of mental

[355] Cf. Peirce 1868.
[356] Cf. Peirce July, 1892, pp. 533-559.
[357] Cf. *Idem*, p. 534.
[358] Cf. Peirce; Buchler (ed.) 1940, p. 354.
[359] Cf. *Idem*, p. 256.

contents on the one hand, and the universality of such contents on the other. What has been exposed by the idea of continuity is the concept of *relatives*, while this relation exists in space-time. That is to say, this relation concerns possibilities, and what will be possibly realized should also be conceived beforehand. Peirce says, 'Continuity is an indispensable element of reality, and that continuity is simply what generality becomes in the logic of relatives, and thus, like generality, and more than generality, is an affair of thought, and is the essence of thought.'[360]

For continuity reveals the outline of an epistemology that describes an uninterrupted necessary representational relation—namely, the logic of relatives. Peirce does not use continuity to explain the relation between mental and physical properties. Instead, he explains it as the metaphysical relation. Meanwhile, he also exposes his point of view on phenomenology. Peirce distinguishes all observable phenomena into three categories; quality, fact, and thought.[361] These categories can be subdivided into a triad of the most fundamental forms of being: firstness, secondness and thirdness.[362]

> The quality of what we are immediately conscious of which is no fiction, is Firstness.
>
> Secondness is the predominant character of what has been done.
>
> Thirdness is that which is what it is by virtue of imparting a quality to reactions in the future.
>
> In psychology Feeling is First, Sense of reaction Second, General conception Third, or mediation. In biology, the idea of arbitrary sporting is First, heredity is Second, the process whereby the accidental characters become fixed is Third. Chance is First, Law is Second, the tendency to take habits is Third. Mind is First, Matter is Second, Evolution is Third.[363]

Unlike Johnson, who emphasizes the inseparability of the mind and body, Peirce highlights the continuity of thoughts, which is a priori tendency in both a spatial and temporal sense. In fact, the principle of continuity does not only explain the connections between ideas, but also guarantees the link between the internal and external worlds. In

[360] Cf. *Idem*, p. 266.
[361] Cf. *Idem*, p. 75.
[362] Cf. *Idem*, p. 91.
[363] Cf. *Idem*, p. 323.

applying the principle of continuity, Peirce develops a strategy to overcome the classical mind-body dualism in his critique of Cartesianism.

Although there is a discernable dichotomy of 'the inner and outer world' in Peirce's thought, he was never quite sympathetic to dualism. The division between the inner and outer world is more a functional distinction than a metaphysical one. The internal world is that of fancy, while the external world is a fact. Instead, Peirce challenges the connection between these two worlds through resorting to a symbolic triadic relation of object, representation, and interpretant. Similar to James's and Dewey's pragmatism(s) as understood by Johnson, Peirce also rejects dualism in his functionalist definition of the mind and says:

> We gain room to insert mind into our scheme, and to put it into the place where it is needed, into the position which, as the sole self-intelligible thing, it is entitled to occupy, that of the fountain of existence; and in so doing we resolve the problem of the connection of soul and body.[364]

Thus, one cannot verify the authenticity of mental contents simply by reference to their rational externalizations. When discussing the relation between materialism and idealism, Peirce develops his monism into a form of neutralism, which amounts to a pragmatist transformation of classical dualism.[365] According to him, neither scientific logic nor common sense can provide a worthwhile explanation. As a form of radical reductionism, materialism aims to achieve ultimate universality rather than rationality. On problems of body-mind relation, Peirce resorts to a weaker version of dualism which, on the one hand, upholds the necessity of material properties, and on the other highlights the independence of the mind and its counteraction against matter.[366]

Although this mild version of dualism suggests that experience is a product of mental mechanisms, the priority of mental events yield more specifications. Similar to

[364] Cf. *Idem*, p. 336.
[365] Cf. *Idem*, pp. 321-322.
[366] Cf. *Idem*, pp. 352-353

the ideas advocated by Dewey, Peirce uses the notion of continuity in attenuating the gap between mind and body. Moreover, the interaction between the mental and material worlds is unified in the realm of thinking, which is regulated by the recognizable law of mind. But the world of the mind does not follow blind mechanical laws.[367]

Although Peirce's dualism is seemingly sympathetic to idealism, he nonetheless improves on a naturalistic interpretation of the mind. For him, the interaction between as well as the transition of mental qualia and matter is embodied involvedly in a continuous union of human lives. In other words, it is the law of mental association that guarantees the internal unity of the mental world in order to make interconnection between the internal and external worlds possible.

5.1.4 Embodied view of meaning

According to Johnson, the meaning of the mind is grounded in and sharpened by the body. Higher-order rationality is not the core, and the abstraction is not the sole feature of the mind. He explains the constructive process of cognition as an intellectualizing process through bodily experience instead of abstract concepts, bolstering this embodied theory with the ideas of 'concept metaphor' and 'image schema.' He thus promotes bodily understanding rather than conceptual speculation. His cognitive linguistics covers a broader scope than the theory of action semantics, but distinct from Fodorian linguistics. Johnson's position may be compatible with that of Peirce, but with certain caveats.

The core of Johnson's ETM is rooted in phenomenology rather than pragmatism. In fact, both phenomenology, pragmatism, and even esthetics are important in the theory of Peirce; these positions are all involved in ETM. Peirce asserts the relation between phenomenology and esthetics: 'Esthetics is the science of ideals, or of that which is objectively admirable without any ulterior reason. I am not well acquainted

[367] Cf. *Idem*, p. 353.

with this science; but it ought to repose on phenomenology.'[368]

Like Johnson, Peirce addresses human understanding—which is the art of reasoning performed in the mode of life—as it occurs under social and cultural influences. Peirce has also expounded on the embodied ideas that Johnson takes from his interpretation of James's and Dewey's pragmatism:

> All knowledge is based on experience, and that science is only advanced by the experimental verifications of theories, we have to place this other equally important truth, that all human knowledge, up to the highest flights of science, is but the development of our inborn animal instincts.[369]

Although Peirce does not underscore the role of the body, inherent capacities are embodied in it. In addition to human experience, Peirce does not reject inner experience either.[370] Moreover, there is no essential gap between different cognitive agents. That is to say, the initial cognitive abilities might not be lower that than later ones. Previous cognitive abilities nevertheless ought to be revisited in order to be developed. Peirce asserts:

> Nature is a far vaster and less clearly arranged repertory of facts than a census report; and if men had not come to it with special aptitudes for guessing right, it may well be doubted whether in the ten or twenty thousand years that they may have existed their greatest mind would have attained the amount of knowledge which is actually possessed by the lowest idiot. But, in point of fact, not man merely, but all animals derive by inheritance (presumably by natural selection) two classes of ideas which adapt them to their environment. In the first place, they all have from birth some notions, however crude and concrete, of force, matter, space, and time; and, in the next place, they have some notion of what sort of objects their fellow-beings are, and of how they will act on given occasions. Our innate mechanical ideas

[368] Cf. Peirce; Buchler (ed.) 1940, p. 62.
[369] Cf. *idem*, p. 215.
[370] Cf. *idem*, p. 149.

were so nearly correct that they needed but slight correction.[371]

What can be seen from our perspective is not the nature of the thing-in-itself, but rather its recognizable naturalizing process. Human cognition includes an epistemological perspective, therefore pragmatism understands reality to be a recognizable form *in addition to* the state of nature. If the realization of the target has not been successfully identified, it will be regarded as a *representation*. Both Peirce and Dewey share this idea in order to note the function of the sign. Moreover, they both regard the state of 'existence' as the disposition to 'react with the other like things in the environment.'[372] That is to say, the core of cognition not only concerns individual survival, but rather coexistence. In addition to his rejection of higher order cognition, Peirce believes that animals also possess the ability to formulate and apply concepts. This differs from Johnson's view. Or in other words, Johnson would not define embodied meaning with reference to speculative and abstract concepts. For example, the lion would take the rabbit as its prey rather than categorize a specialized subset as rabbit. The rabbit may not have the concept of 'west,' but it does understand which direction is best to run away from the lion. Peirce characterizes such notions as 'animal motions.'[373] As such, this embodied knowledge is inherent in order to sustain the existence of the life. Furthermore, this knowledge is embodied rather than deliberate. Peirce says:

I am bound to maintain that an idea can only be affected by an idea in continuous connection with it. By anything but an idea, it cannot be affected at all. This obliges me to say, as I do say, on other grounds, that what we call matter is not completely dead, but is merely mind hidebound with habits. It still retains the element of diversification; and in that diversification

[371] Cf. *idem*, pp. 214-215.
[372] Cf. *idem*, p. 375.
[373] Cf. *idem*, p. 239.
'The animal motions to which I allude, are, in the first place and obviously, blushing, blenching, starting, smiling, scowling, pouting, laughing, weeping, sobbing, wriggling, flinching, trembling, being petrified, sighing, sniffing, shrugging, groaning, heartsinking, trepidation, swelling of the heart, etc. etc. To these may, perhaps, be added, in the second place, other more complicated actions, which nevertheless spring from a direct impulse and not from deliberation.'

> there is life. When an idea is conveyed from one mind to another, it is by forms of combination of the diverse elements of nature, say by some curious symmetry, or by some union of a tender colour with a refined odour. To such forms the law of mechanical energy has no application. If they are eternal, it is in the spirit they embody; and their origin cannot be accounted for by any mechanical necessity. They are embodied ideas; and so only can they convey ideas.[374]

Peirce also promotes embodied ideas, and it is the embodied habit that encompasses both the mechanism and the idealist tendency towards growth. Besides ideas, the fixed states of matter can also be regarded as habitual states. Therefore, embodied meaning is involved in the ongoing and adaptive process that is the inquiring object of our life.

5.1.5 The role of feeling in thought

The object of feeling is also the content of thought. Peirce regards feeling as 'a great branch of mental phenomena, [forming] the warp and woof of cognition,' and pain and pleasure as objectionable constituents of cognition.[375] When we are thinking, our feelings may sometimes be strong; however, we may not regard these feelings as constituting the core of our cognitive processes. Feeling may be caused by an object or an event, yet the felt objects may be inexplicable. For instance, pain is a feeling. When we have a headache, it is difficult to articulate, and yet the feeling remains strong nonetheless. When we suffer heartache, the feeling is more difficult still to express. In fact, the latter is an emotion in addition to a feeling of pain. A feeling may be inexplicable, but it can perhaps be shared via empathy and shared experience, because the real perspectives—that is, qualia—are identical.

It seems that feeling yields the explanations of the qualitative aspect of the

[374] Cf. *idem*, pp. 350-351.
[375] Cf. *idem*, p. 96.

experience in the sense of phenomenology rather than realistic experience in the sense of pragmatism. In this way, the perceivable qualities and felt objects are better explained by the concept of embodiment.

For Peirce, feeling involves the property of firstness, which constitutes the most basic form of being known as 'directness.' This can be contrasted with secondness, which depends on certainty and thirdness, which concerns the realm of possibility. In addition, it should be noted that 'the feeling is simply a quality of immediate consciousness.'[376]

Feeling is uncertain regarding potentiality as well as the form of 'may-being,' but the quality as well as the object of feeling is *sui generis*.[377] Peirce explains feeling as 'not anything which is dependent, in its being, upon mind, whether in the form of sense or in that of thought. Nor is it dependent, in its being, upon the fact that some material thing possesses it.'[378] In addition, 'a quality of feeling can be imagined to be without any occurrence, as it seems to me. Its mere may-being gets along without any realization at all.'[379]

Peirce is a pragmatist rather than phenomenologist. According to him, feeling yields comprehensive knowledge. Although some objects of feeling lack objectivity, they are not *ex nihilo*; they indeed concern realizable possibilities. That is, qualia is akin to the existence of matter; the former is the object of the mind, while the latter is what makes up the external world.

Peirce takes feeling to be a source of knowledge, but this immediate conscious mental state is not at the core of cognition research. Feeling is an active state, but uncertain; its contents are chaotic. Feeling is real, but its reality is that of fact. In addition, strong feelings may disturb the realistic perspective of cognition. Feeling is capricious; one feeling will replace the former one. Peirce does not deny the meaning of feeling. However, he does not take it to be a definitively legitimate cognitive state. His position differs from Johnson's understanding of James and Dewey's approach.

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[376] Cf. *idem*, pp. 81-82.
[377] Cf. *idem*, p. 87.
[378] Cf. *idem*, pp. 84-85.
[379] Cf. *idem*, p. 81.

Peirce explains the evolution from feeling to reaction-sensation, and then to general conception, regarding them as three categories of the elementary phenomenon of mind, in its psychological sense.[380] In such a way, feelings comprise things in one's immediate presence. Reaction-sensation is the transition necessary for generalizing the felt object into an advanced conception. Peirce explains:

> When we think, we are conscious that a connection between feelings is determined by a general rule, we are aware of being governed by a habit. Intellectual power is nothing but facility in taking habits and in following them in cases essentially analogous to, but in non-essentials widely remote from, the normal cases of connections of feelings under which those habits were formed.[381]

It is, in fact, habit that associates mental states and contains the uncertainty and inexplicability of the mind. Therefore, the formative process of habitual actions is also involved in the generalization and intentionalization of the ideas. The nature of cognition as well as a fixed state of mind should be recognized through concepts in the conceptualizing process. In fact, pragmatism challenges the definition of the clarity of mind regarding its conceivability. Peirce explains:

> The one primary and fundamental law of mental action consists in a tendency to generalization. Feeling tends to spread connections between feelings awaken feelings; neighbouring feelings become assimilated; ideas are apt to reproduce themselves. These are so many formulations of the one law of the growth of mind. When a disturbance of feeling takes place, we have a consciousness of gain, the gain of experience; and a new disturbance will be apt to assimilate itself to the one that preceded it. Feelings, by being excited, become more easily excited, especially in the ways in which they have previously been excited. The consciousness of such a habit constitutes a general conception.[382]

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[380] Cf. *idem*, p. 320.
[381] Cf. *idem*, p. 320.
[382] Cf. *idem*, pp. 320-321.

Every cognitive agent performs her own habits, with her mental disposition guided by her habit. Although we may experience curious feelings, they cannot be directly perceived by others. However, such feelings are channeled directly from our experience. Therefore, even though we experience difficulty in articulating feelings, we may not give up trying to express their contents in a way that is understood from a realistic perspective. Mere feeling may lack rationality, but it can still attempt to be rational; it is the notion of feeling in thought. Besides, Peirce critiques James's radical position on relating the conceptions of feeling and meaning. Peirce says:

> There is the pragmatism of James, whose definition differs from mine only in that he does not restrict the 'meaning,' that is the ultimate logical interpretant, as I do, to a habit, but allows percepts, that is, complex feelings endowed with compulsiveness, to be such. If he is willing to do this, I do not quite see how he need give any room at all to habit. But practically, his view and mine must, I think, coincide, except where he allows considerations not at all pragmatic to have weight.[383]

Indeed, Peirce does not advocate knowledge regarding feeling. In his analyses of feeling, the inexplicable perspective should be considered in a way that can conceivably be clarified. Our thinking may involve feeling, even if feeling itself does not lie at the core, but may make the core unseen. Instead, feeling yields multiple possibilities that are involved with affectability. Distinct from James's approach, Peirce exposes his own:

> My pragmatism, having nothing to do with qualities of feeling, permits me to hold that the predication of such a quality is just what it seems, and has nothing to do with anything else. Hence, could two qualities of feeling everywhere be interchanged, nothing but feelings could be affected. Those qualities have no intrinsic significations beyond themselves.[384]

[383] Cf. *idem*, pp. 287-288.
[384] Cf. *idem*, p. 272.

5.1.6 Emotion and reason

In Johnson's understanding of James, emotion is regarded as the mode of awareness of a changing bodily state. Emotion is not the same as radical reason, but important in addition to it. A positive emotion can mean giving a good reason. Akin to the role that feeling plays in thought, emotion is involved in the process of reasoning. That is to say, emotions may affect intellectual activity.

Contrary to a feeling that has a perceived object, emotion is akin to a special feeling of 'the tout ensemble.'[385] Furthermore, if feeling represents an objective self, emotion represents a subjective self. Peirce distinguishes emotions from feelings, noting that emotions are 'feelings without predication.' He explains:

> For if there are any such feelings not predicates, they are the emotions. Now every emotion has a subject. If a man is angry, he is saying to himself that this or that is vile and outrageous. If he is in joy, he is saying 'this is delicious.' If he is wondering, he is saying 'this is strange.' In short, whenever a man feels, he is thinking of something. Even those passions which have no definite object—as melancholy—only come to consciousness through tinging the objects of thought. That which makes us look upon the emotions more as affections of self than other cognitions, is that we have found them more dependent upon our accidental situation at the moment than other cognitions; but that is only to say that they are cognitions too narrow to be useful.[386]

For Peirce, emotion is an active state of the mind. We are emotional when our attention is strongly drawn to complex and inconceivable circumstances. When emotions are changing, the change may either become stronger or more complex. In such a way, 'an incomplex thought can be nothing but a sensation or emotion, having no rational character.'[387] For Peirce, both emotions and feelings lack rationality—they

[385] Cf. *idem*, p. 84.
[386] Cf. *idem*, p. 238.
[387] Cf. *idem*, p. 240.

are temporarily conscious states which are incapable of supporting the intellectual hypothesis. He says:

> When we have an emotion, an hypothesis, strictly speaking, is hardly possible—the analogy of the pasts played by emotion and hypothesis is very striking. There is, it is true, this difference between an emotion and an intellectual hypothesis, that we have reason to say in the case of the latter that to whatever the simple hypothetic predicate can be applied, of that the complex predicate is true; whereas, in the case of an emotion this is a proposition for which no reason can be given, but which is determined merely by our emotional constitution.[388]

Peirce regards emotions as a crucial participant in the rational activities. We may find it convenient to perform reasonable activities with positive emotions, but an emotional state remains different from a reasonable state of mind. Furthermore, cognitive states nevertheless necessitate explanation and interpretation. Peirce thus distinguishes three kinds of interpretants in his theory of signs: the emotional interpretant, the energetic interpretant, and the logical interpretant. He explains:

> There is almost always a feeling which we come to interpret as evidence that we comprehend the proper effect of the sign, although the foundation of truth in this is frequently very slight. This 'emotional interpretant,' as I call it, may amount to much more than that feeling of recognition; and in some cases, it is the only proper significate effect that the sign produces. Thus, the performance of a piece of concerted music is a sign. It conveys, and is intended to convey, the composer's musical ideas; but these usually consist merely in a series of feelings. If a sign produces any further proper significate effect, it will do so through the mediation of the emotional interpretant, and such further effect will always involve an effort. I call it the energetic interpretant. The effort may be a muscular one, as it is in the case of the command to ground arms; but it is much more usually an exertion upon the Inner World, a mental effort.

[388] Cf. *idem*, pp. 238-39.

> It never can be the meaning of an intellectual concept, since it is a single act, [while] such a concept is of a general nature. But what further kind of effect can there be? In advance of ascertaining the nature of this effect, it will be convenient to adopt a designation for it, and I will call it the logical interpretant, without as yet determining whether this term shall extend to anything beside the meaning of a general concept, though certainly closely related to that, or not.[389]

Feelings and emotions are involved in the process of thinking. Although they may also involve intellectual concepts, none of them is the core of the cognition. All mental properties will produce mental effort; the problem itself is how to realize these contents of the mind. Emotion and feeling are both real, but not reliable enough to perceive the essence of the thinking. As opposed to the properties of directness and privacy of feeling, emotion may be observed in more evident ways and it could always be expressed in extreme situations. Moreover, emotion is more infectious and transmittable than feeling, but both states lack rationality, rendering them less reliable than the objective perspective of thinking.

5.1.7 Consciousness as a functional process

Johnson takes consciousness to be a functional process. The mark of the mind is the conscious state which is self-contained. This property concerns the never-ending sense of self-contained existence. With respect to the positions between using *consciousness* and *intentionality* to define the nature of the mind, cognitive scientists may belong to one of two camps. Johnson's division of cognitive science into first and second generations reveals the difference between mental representation versus perceptual experience and action. Nevertheless, Fodor is considered the leader of the first generation, and heavily influences the study of intentionality. Fodor thus rejects

[389] Cf. *idem*, pp. 276-277.

the legacy of consciousness and projects the inner structure of the mind instead onto the shared experience of humankind. On the contrary, Johnson promotes the explanation of consciousness and represents James's and Dewey's similar ideas from the pragmatist perspective of cognition intertwined with their psychology and sociology. Similar ideas can in fact be found in the work of Peirce. For Peirce, 'consciousness is sometimes used to signify the *I think*, or unity in thought.'[390] He explains:

> In short, the Immediate (and therefore in itself unsusceptible of mediation — the Unanalyzable, the Inexplicable, the Unintellectual) runs in a continuous stream through our lives; it is the sum total of consciousness, whose mediation, which is the continuity of it, is brought about by a real effective force behind consciousness.[391]

When we are conscious, the outside world is involved in our thinking. In such a way, changes taking place in the outside world will influence our thoughts. Thus, we need to consider the relation between the outside world and our thinking in other to guarantee the rational perspective of the recognizable world and the realizable perspective of the mind. Peirce says:

> Consciousness may be defined as that congeries of non-relative predicates, varying greatly in quality and in intensity, which are symptomatic of the interaction of the outer world…and of the inner world, apparently derived from the outer, and amenable to direct effort of various kinds with feeble reactions; the interaction of these two worlds chiefly consisting of a direct action of the outer world upon the inner and an indirect action of the inner world upon the outer through the operation of habits. If this be a correct account of consciousness, *i.e.*, of the congeries of feelings, it seems to me that it exercises a real function in self-control, since without it or at least without that of which it is symptomatic, the resolves and exercises of the inner world could not affect the real determinations and habits of the outer world. I say that these belong to the outer world because they are not mere fantasies but are real

[390] Cf. *idem*, p. 249.
[391] Cf. *idem*, pp. 236-237.

agencies.[392]

Peirce emphasizes the function of conscious states—especially their realistic perspective regarding the internal and external worlds. Moreover, consciousness is involved in the process as well: 'The form of the sense of learning, of acquiring, of mental growth is eminently characteristic of cognition.'[393] Two states of consciousness can be distinguished: one being interruption and the other synthetic consciousness. Feeling is of the first sort because it can be included in an instant of time as well as the 'passive consciousness of quality, without recognition or analysis.' Besides feeling, the resistance as well as external fact could also render us conscious in order to provoke a reaction. Indeed, Peirce emphasizes the third degree of consciousness in order to define the most essential nature of the mind—it is synthetic consciousness that is the most essential nature of the mind, and its function is mediation. Peirce explains:

> This is a kind of consciousness which cannot be immediate, because it covers a time, and that not merely because it continues through every instant of that time, but because it cannot be contracted into an instant. It differs from immediate consciousness, as a melody does from one prolonged note. Neither can the consciousness of the two sides of an instant, of a sudden occurrence, in its individual reality, possibly embrace the consciousness of a process. This is the consciousness that binds our life together. It is the consciousness of synthesis.[394]

In such a way, consciousness is a piloted and automatic state. Being conscious addresses a growing tendency to move from a singular consciousness such as feeling to a dual consciousness such as reaction, and then to a plural consciousness such as learning.[395] These three types of conscious states may be further explained from the particular perspective of pragmatism in order to note their most appropriate functions. Both the rational and practical perspectives are condensed in the performance of habits.

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[392] Cf. *idem*, p. 287.
[393] Cf. *idem*, pp. 96-97.
[394] Cf. *idem*, pp. 96-97.
[395] Cf. *idem*, p. 95.

5.1.8 The transition from action to habit

As stated previously, cognitive pragmatists regard action as the nature of cognition. This form of action-oriented cognition inspired the ideas of American philosophy that have posed such a challenge for classical cognitive science; ideas such as representationalism and cognitivism. Given that Peirce has been overlooked in works of Johnson, Rohrer, and Engel et al., I will introduce the Peirceian theory of action into the current framework of cognitive pragmatism. Moreover, Engel et al. emphasize the importance of habit, and their approach indeed differs from that of Johnson and Rohrer in substantial ways, as we saw in Chapter One. In fact, Engel et al. neither reject the function of representation nor the intentionality of the mind. Such ideas can also be further explained with Peirceian pragmatism, or pragmaticism. The theory of habit does not oppose that of action but rather builds on it in order to overcome certain limitations. Peirce says:

> It must be admitted, in the first place, that if pragmaticism really made Doing to be the Be-all and the End-all of life, that would be its death. For to say that we live for the mere sake of action, as action, regardless of the thought it carries out, would be to say that there is no such thing as rational purport.[396]

Peirce does not easily choose between thinking and doing. Instead, he underlines the rational perspective of the thought and the purposive perspective of the practice. It is thus important to understand the *transition* between the two. In other words, identifying the transitioning object is the key difficulty. Both the recognition of the idea and the evaluation of the practice depend on the functioning result of the transition. This element is a premature but realizable possibility whose nature could be practical.

[396] Cf. *idem*, p. 263.

In pragmaticism, clarity stands at the center. Conceptualization is also the process of making ideas simple in order to indirectly meet the practicable recognition and meanings of the ideas. Peirce says: 'The whole function of thought is to produce habits of action; and that whatever there is connected with a thought, but irrelevant to its purpose, is an accretion to it, but no part of it.'[397]

Peirce does not specify the meaning of an action, while action is the basis of habit. It is habit which condenses both rationality and meaningfulness. Hence, it is important to characterize the *habit of action*. What Peirce emphasizes is indeed this very concept. Habit is cognitively performed in the most direct way, transferring maximal intelligence into practical effect. That is to say, we act in a recognizable way on a given occasion. Peirce further explains:

> To develop its meaning, we have, therefore, simply to determine what habits it produces, for what a thing means is simply what habits it involves. Now, the identity of a habit depends on how it might lead us to act, not merely under such circumstances as are likely to arise, but under such as might possibly occur, no matter how improbable they may be. What the habit is depends on when and how it causes us to act. As for the when, every stimulus to action is derived from perception; as for the how, every purpose of action is to produce some sensible result. Thus, we come down to what is tangible and conceivably practical, as the root of every real distinction of thought, no matter how subtile it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice.[398]

Action is the guiding practice of a disposition in habit. Within the habit, there are both purposeful and realizable tendencies involved. There is a difference between Peirceian action and Jamesian action. The former concerns reliable efficiency, while the latter concerns direct efficiency. However, the above citation is perhaps derived from James's original misinterpretation[399] of Peirce's initial notion of pragmatism.

[397] Cf. *idem*, p. 353.
[398] Cf. *idem*, p. 249.
[399] Cf. James Dec.8, 1904, p.673.

Although Peirce emphasizes the purpose of action, it does not necessarily mean that the purposeful perspective is essential. By contrast, purposeful cognition should be distinguished from rational cognition. Purposeful activity is not the same thing as rational activity because purpose is not sufficient to define the nature of the mind. Furthermore, behind the purpose itself, some reasons may lie concealed. On the contrary, behind the blindness of the habit, there may lie rational qualia that warrant more careful consideration. In his definition of uniformity, Peirce explains the transition between action and habit. He says:

> All things have a tendency to take habits. For atoms and their parts, molecules and groups of molecules, and in short every conceivable real object, there is a greater probability of acting as on a former like occasion than otherwise. This tendency itself constitutes a regularity, and is continually on the increase. In looking back into the past we are looking toward periods when it was a less and less decided tendency. But its own essential nature is to grow. It is a generalizing tendency; it causes actions in the future to follow some generalization of past actions; and this tendency is itself something capable of similar generalizations; and thus, it is self-generative. We have therefore only to suppose the smallest spoor of it in the past, and that germ would have been bound to develop into a mighty and over-ruling principle, until it supersedes itself by strengthening habits into absolute laws regulating the action of all things in every respect in the indefinite future.[400]

In this process, chance, law, and habit-taking are involved. The habit contains the law on one hand, but also chance on the other. Considering all of these elements, the fundamental nature of cognition yields its self-generative capacities. For Peirce, *voluntary* as well as *instinctive* actions spring from our original nature.[401] That is to say, growth is an internal developing tendency of the creature. Although habits are repeated actions that appear more or less blind, they are far from irrational. In addition, habit is the bridge connecting previous experience with potential future experience. The initial

[400] Cf. Peirce; Buchler (ed.) 1940, pp. 358-359.
[401] Cf. *idem*, p. 242.

experience is regularized and generalized after acting as habits readily embodied in the performance of the habit. In this way, the theory of habit can overcome the dichotomy of mind and body, for acquitted habits are definitively meaningful. Peirce places both the psychical and the physical aspects in the context of 'habit-taking.' He says:

> It would be a mistake to conceive of the psychical and the physical aspects of matter as two aspects absolutely distinct. Viewing a thing from the outside, considering its relations of action and reaction with other things, it appears as matter. Viewing it from the inside, looking at its immediate character as feeling, it appears as consciousness. These two views are combined when we remember that mechanical laws are nothing but acquired habits, like all the regularities of mind, including the tendency to take habits, itself; and that this action of habit is nothing but generalization, and generalization is nothing but the spreading of feelings.[402]

External rules and force necessarily play important roles in simulating cognition. However, internal laws and disposition are absolutely essential for seeing the core of cognition. Habits are not innate, but acquired. For example, James enjoys coffee with his breakfast, while his mother only drinks tea. In fact, both coffee and tea are refreshing, but suitable for different tastes. Both coffee and tea are caffeinated, but functions of caffeine are different for different people. James habitually drinks coffee, because without coffee, he will suffer a headache. Therefore, habit is not only voluntary, it embodies individual differences as well as a purposefully adopted action. Peirce thus explains the bodily and environmental influences on the mind. He says:

> Moreover—*here is the point*—every man exercises more or less control over himself by means of modifying his own habits; and the way in which he goes to work to bring this effect about in those cases in which circumstances will not permit him to practise reiterations of the desired kind of conduct in the outer world shows that he is virtually well-acquainted with

[402] Cf. *idem*, p. 353.

> the important principle that *reiterations in the inner world—fancied reiterations—if well intensified by direct effort, produce habits*, just as do reiterations in the outer world; and these habits will have power to influence actual behaviour in the outer world; especially, if each reiteration be accompanied by a peculiar strong effort that is usually likened to issuing a command to one's future self.[403]

Habits can be exercised and modified such that the rational perspective grows. Therefore, judging by habits, the cognitive agent can be readily identified, but may not be easily doubted. Habit represents the mind that is credibly recognized. Habit functions as the transsociation of various experiences. This idea is comparable to the *experiential transaction* of Dewey and the concept of *enaction* noted by Varela et al. that are promoted by the cognitive pragmatists. Peirce says:

> It can be proved that the only mental effect that can be so produced and that is not a sign but is of a general application is a habit-change; meaning by a habit-change a modification of a person's tendencies toward action, resulting from previous experiences or from previous exertions of his will or acts, or from a complexus of both kinds of cause. It excludes natural dispositions, as the term 'habit' does, when it is accurately used; but it includes beside associations, what may be called 'transsociations,' or alterations of association, and even includes dissociation, which has usually been looked upon by psychologists (I believe mistakenly), as of deeply contrary nature to association.[404]

For Peirce, the essence of nature itself yields general applications in the same way a change of habit does. When habit has been involved in a positive and transformative way, an action will be realized that manifests the result. In addition to the function of associating, dissociations may also take place, which cannot be removed completely. Habit does not only include natural dispositions, but also projectable ruptures in experience. As opposed to action, habit invokes both disposition and realization. It is a

[403] Cf. *idem*, p. 284.
[404] Cf. *idem*, p. 277.

growing and potential tendency that is embodied with more and more meanings. This integration contains both contiguity and rupture, while the process is functionally continuous. Although it may be interrupted, it could just as likely continue in another way.

Contrary to Johnson's anti-dualist cognitive pragmatism, Peirce accepts the existence of possible worlds, such as the world of fancy. This is indeed a phenomenological perspective that allows us to take note of the differences between the internal and external worlds. The former is a world of fancy, whereas the latter is a world of facts. He says:

> It is that every man inhabits two worlds. These are directly distinguishable by their different appearances. But the greatest difference between them, by far, is that one of these two worlds, the Inner World, exerts a comparatively slight compulsion upon us, though we can, by direct efforts so slight as to be hardly noticeable, change it greatly, creating and destroying existent objects in it; while the other world, the Outer World, is full of irresistible compulsions for us, and we cannot modify it in the least, except by one peculiar kind of effort, muscular effort, and but very slightly even in that way.[405]

We are the proprietors of the inner world only, while we cannot escape from restrictions imposed by the outside world. Although we may perceive (say) tremors, we are not sure about the object of our feeling, and we have already been influenced and have to consider how to react. This influence may be either positive or negative, but from a pragmatist point of view, their effects can be realized in a positive way in order to glean positivity and avoid negativity. Nevertheless, both pragmatism and pragmaticism belong to methodology. James and Dewey overcome this dualism through their pragmatism, while Peirce performs a triadic explanation to perceive every possible relation between different worlds. Peirce explains the function of signs in addition to the rationality of habit.

[405] Cf. *idem*, p. 276.

In the conceptualizing process of habit, Peirce does not alternate between action and concept, but analyses the limits of both. The former lacks generality, while the latter lacks activity. In such a way, ETM and RTM are both in need of critique. As opposed to the presented view of the cognitive pragmatists, Peirce's approach is unique. His position is neutral, a quality considered meaningful for both the embodied and cognitive mind, while habit remains at the core. According to Peirce, no matter which route, through action or concept, the externalization of the meaningful content of the mind depends on habitual logic. The difference is that in the case of the former the energetic interpretant performs the function, while in the latter, the logical interpretant functions.[406]

Peirce does not emphasize logical form, but rather its inner disposition. This emphasis is akin to Fodor's promotion of intentionality. For Peirce, this disposition is the law of mind as well as its admitted habit. Habit does not concern all of previous experience. Rather than a collection, it is an integration as well as an accretion. This reason also explains why habit is a transsociation of experience rather an association or connection. Habit persists in the viable part of the experience, no matter how chaotic the other things involved happen to be. As opposed to the purposiveness of action, habit promotes *inertia*. Habit may thus yield either to speculative knowledge or to practical knowledge. The importance is that this particular performance is unreflective because the meaning is already embodied. This idea is similar to that of evolutionary theory, a quality appreciated by almost every pragmatist. Indeed, habit formation plays a crucial role in the evolutionary tendency of all living creatures. Peirce writes:

> The tendency to habit would be started; and from this, with the other principles of evolution, all the regularities of the universe would be evolved. At any time, however, an element of pure chance survives and will remain until the world becomes an absolutely perfect, rational, and symmetrical system, in which mind is at last crystallized in the infinitely distant future.[407]

[406] Cf. *idem*, p. 286.
[407] Cf. *idem*, p. 323.

In addition to principles and laws, uncertainties are involved in the process of habit adoption. One example of an uncertainty would be *chance*. Both chance and law are involved in the persistence of life. This growing tendency proves to be irresistible, if perhaps uneasy. Moreover, the relation between habit and thought is less conflicting than the relation between action and representation. In this case, Peirce also specifies the habit of mind as well as the law of efficient causation. He says:

> In so far as evolution follows a law, the law of habit, instead of being a movement from homogeneity to heterogeneity, is growth from difformity to uniformity. But the chance divergences from law are perpetually acting to increase the variety of the world, and are checked by a sort of natural selection and otherwise (for the writer does not think the selective principle sufficient), so that the general result may be described as 'organized heterogeneity,' or better rationalized variety. In view of the principle of continuity, the supreme guide in framing philosophical hypotheses, we must, under this theory, regard matter as mind whose habits have become fixed so as to lose the powers of forming them and losing them, while mind is to be regarded as a chemical genus of extreme complexity and instability. It has acquired a remarkable degree a habit of taking and laying aside habits.[408]

From the point of view of anti-pragmatist cognitivism, Fodor rejects Darwinism.[409] This contradiction between ETM and RTM is sharp. However, Peirce's evolutionism does not drawn upon the ideas of Darwin alone. Instead, Peirce introduces and compares three different theories of evolution: drawn from Charles Darwin (1809-1882), Jean-Baptiste Lamarck (1744-1829), and Clarence King (1842-1901). Peirce explains:

> I. The theory of Darwin was that evolution had been brought about by the action of two factors: first, heredity, as a principle making offspring nearly resemble their parents, while yet giving room for 'sporting' or accidental variations—for very slight variations often, for

[408] Cf. *idem*, pp. 359-360.
[409] Cf. Fodor and Piattelli-Palmarini 2010.

> wider ones rarely; and, second, the destruction of breeds or races that are unable to keep the birth rate up to the death rate. This Darwinian principle is plainly capable of great generalization.
>
> II. The Lamarckian theory also supposes that the development of species has taken place by a long series of insensible changes, but it supposes that those changes have taken place during the lives of the individuals, in consequence of effort and exercise, and that reproduction plays no part in the process except in preserving these modifications.
>
> III. A third theory of evolution is that of Mr. Clarence King. The testimony of monuments and of rocks is that species are unmodified or scarcely modified, under ordinary circumstances, but are rapidly altered after cataclysms or rapid geological changes. Under novel circumstances, we often see animals and plants sporting excessively in reproduction, and sometimes even undergoing transformations during individual life, phenomena no doubt due partly to the enfeeblement of vitality from the breaking up of habitual modes of life, partly to changed food, partly to direct specific influence of the element in which the organism is immersed.[410]

In fact, Peirce advocates the ideas of Clarence King in particular—especially his view on the role of habit-change and environment-change. According to Peirce, Lamarckian theory only explains the development of characteristics towards which individuals strive, and Darwinian theory only explains the production of characteristics truly beneficial to the race, though they may prove fatal to individuals. More broadly and philosophically conceived, Darwinian evolution is evolution by the operation of chance, and the dissolution of poor results, while Lamarckian evolution is evolution through the joint effect of habit and effort. In other words, evolution has been conceived for the purposes of adapting the organism to the changing environment either through intention or by chance. It is indeed *chance*, a quality that is difficult to define, that stands at the core. Thus, in addition to a very prominent place allocated to the process of evolution in the universe, external forces and the breaking up of habits are meaningful.

[410] Cf. Peirce; Buchler (ed.) 1940, pp. 319-320.

However, the reasons behind this are not easily found. In this sense, some of the broadest and most important facts of biology and paleontology can be introduced in order to identify the key factor in the historical evolution of institutions as well as in the evolution of ideas.[411]

Noticeably, the notion of action is little emphasized in Peirce's theory. Instead, Peirce is much more interested in the notion of habit. Compared to action, habit is more closely related to both rationality and stability of thought. It also implies a strong sense of spontaneity and continuity. Peirce not only underlines the effect of habit on actions, but also suggests the effect of habit on the mind. In fact, the concept of 'mental habit' is a key element that may distinguish Peirceian pragmaticism from other theories of pragmatism. In effect, mental habit concerns both internal disposition and external correspondence. The meaning of habit can be seen in the adaptive capabilities of every creature as well as the basis of cognition.

According to Johnson's theory of embodied mind, mind and body—as well as thought and action—remain inseparable. Moreover, body and action and the perceptual experience address the basic meaning of the mind. In order to explain embodied meaning, Johnson injects American pragmatism, especially that of James and Dewey, into the framework of embodied cognition. In addition to James-Dewey's pragmatist view of cognition, the ideas of anti-dualism, anti-representationalism, and anti-fundamentalism may also be found in Peirce.

5.2 Peirce and the 'cognitive mind'

I will, first of all, introduce the ideas contained in Peirce to Fodor's representational theories of mind (RTM). Regarding their ideas on the philosophies of mind and language, it is possible to explore the similarities therein to make a connection between Fodor's Language of Thought Hypothesis (LOTH) and Peirce's semiotics. The concept

[411] Cf. *idem*, pp. 319-320.

of ‘mental representation’ may yield the idea of ‘belief-habit’ in order to illustrate both the nature of mind and that of language. Although Peirce does not use ‘intentionality’ to explain the features of the mind, his explanation of ‘consciousness’ includes intentional contents. Furthermore, in Peirce’s work the concept of embodied meaning is also involved in a deeper sense in the exploration of the object of the mind. In this way, it is the ‘interpretant’ that plays an important role in externalizing the meaning of the proposition in order to render it recognizable. Second of all, it can be seen that Fodor does not consider Peirce to the main target of pragmatism. In other words, anti-pragmatist cognitivism does not in fact reject Peirceian pragmatism; indeed, pragmaticism is not mentioned at all. It is thus possible to ascertain whether the critics of the ‘concept pragmatism’ of Fodor have adopted Peirce’s ideas (they have not). In fact, Peirce worries about the method of using and having a concept, because such externalizations of the mind are difficult to identify.

RTM utilizes a computer metaphor: computation is performed on mental symbols. This procedure appears to be a descriptive theory of the mental machine; it establishes the function of language as a mechanical system. Fodor explores the language of thought as well as the language of the computer. In this way, ‘the semantics of sentences are constructs out of the semantics of words,’ and ‘the semantics of thoughts are constructions out of the semantics of the concepts that are their constituents.’[412] In doing so, one is able to illustrate that the modality of mind based on functioning representations and the process of computation are comparative to the basis of cognitive function. He explains:

> It’s a major insight of modern logic that certain of the inferential relations among symbols can be, as it were, mimicked by syntactic relations. For example, within certain limits, the *sematic* relation that holds between two symbols when one is *deducible* from the symbols is *derivable* from the other. We can even build a machine which has, within certain limits, the following property: the operations of the machine consist entirely of transformations of

[412] Cf. Fodor 2008, p. 19.

> symbols; in the course of performing these operations, the machine is sensitive *solely* to syntactic symbols are entirely confined to alterations of their shapes. Yet the machine is so devised that it will transform one symbol into another if and only if the symbols so transformed stand in a certain *semantic* relation; viz. if and only if the one symbol entails the other. Such machines are called computers.[413]

Semantic relations function through syntactic symbols; computers are essentially thinking machines that think according to a specific language. Besides, our natural language is a comprehensive token of metalanguage that is itself comparable to the language of machines. Therefore, the well-functioning linguistic system of our natural languages can be used to communicate profound thoughts in addition to functioning on the physically performable level of the computer. Indeed, the functioning language of the computer is to be found in a closed linguistic system, and it is a model that readily yields both mental and physical explanations of cognition that are also useful for reflecting our way of thinking in the form of concepts. Peirce also conceived of such a functioning language, which he called 'technical language.' He writes:

> A distinct idea is defined as one which contains nothing which is not clear. This is technical language; by the *contents* of an idea logician understand whatever is contained in its definition. So that an idea is *distinctly* apprehended, according to them, when we can give a precise definition of it, in abstract terms. Here the professional logicians leave the subject; and I would not have troubled the reader with what they have to say, if it were not such a tricking example of how they have been slumbering through ages of intellectual activity, listlessly disregarding the enginery of modern thought, and never dreaming of applying its lessons to the improvement of logic.[414]

Although there were no computers in Peirce's time, precursors to the modern-day computer did exist. On a conceptual level, this type of machine is able to embody the

[413] Cf. Fodor 1987, p. 123.
[414] Cf. Peirce; Buchler (ed.) 1940, p. 23.

capacity of thinking in addition to the abstract distinctness and perfect clearness of logical formulations. And on an operational level, it is entirely clear. Peirce draws parallels between the method of philosophy and that of logic. One of his key ideas is that this mental machine needs to clearly organize its references as well as the objects being thought of and accounted for (i.e. referenced). In other words, this machine should be capable of executing clear ideas. However, this clearness is difficult to define in a comprehensive way through a metalanguage. In such a different way, technical language can shed light on the cognitive process regarding the principle of regularity and universality. This language is akin to logic and its contents can be defined in terms of propositions. Furthermore, Peirce exposes the limits of logical expression, for logical expression fails to account for the development of modern science and technology while also ignoring the complex content of thoughts.

As a substitute for the functioning process of the mind, the computer performs using a rigid technical language. This technical language can ensure that any content or product of the inner conceivability can be directly expressed in recognizable outputs through computer programs. Such programs can be modified in order to avoid possible errors, reduce errors on the physical level, and then test and remove such errors. However, this computer is 'black box;' its content cannot be understood even though it is opened. As a result, the classical ideas of cognitivism at the basis of the computer metaphor are challenged by embodied cognitive science. According to this new idea, the computer is incapable of replacing the human mind. The mind is not in any sense a machine.

Diverging from mathematics and logic, Peirce does not conceive of the thought process as rigid or strictly linear. Instead, he explores the logical relation in order to explain the conceivability of the mind. Neither formality nor abstractness can be reduced to mere mathematic symbols and logical rules. Such external restrictions are indeed strongly rejected by phenomenologists and existentialists. Although Peirce's semiotics is itself based on logical language, it is not limited by logical rules—because it also benefits from the function of explanation as well as conceptual thinking. In other words, Peirceian semiotics yields both analytic and synthetic explanations. The

abstractness of logic is condensed with the integrity of thought in addition to the richness and reality of experience. The formality of logic is also akin to the conceivable universality of ideas, and, logical relation does not exclude mental dispositions; it can simplify its externalization as clearly as possible. In this representational system, the contents as well as the meanings of signs require interpretation in order to be recognized and clarified. Such mental representations are recognizable and they are compositional in the paradigm of the language of thought (LOT). Both *LOT1* and *LOT2* can be deemed correct, given that this special language explores the relation between logical theories and theories of reasoning. Mental representations are related by logical form. Fodor explains:

> That the logical syntax of the thought is conjunctive (partially) determines, on the one hand, its truth-conditions and its behavior in inference and, on the other hand, its causal/computational role in mental processes. I think that this bringing of logic and logical syntax together with a theory of mental processes is the foundation of our cognitive science; in particular, the main argument for a language of thought is that, very, very plausibly, only something that is language-like can have a logical form.[415]

Fodor explores the theory of the modality of the mind. He compares the function of language to the function of thought. It is the concept that condenses the meaning of the thought; concepts are constituents of the mind. In fact, Peirce shares similar ideas. For Peirce, the actual content of the conception cannot possibly be recognizable, as it likely exists independently. Therefore, the way in which content can be possibly recognized is indirectly, and in representational form. Observable and represented things are tokens of the concept as well as the object of the mind. Accordingly, every 'being' is represented by a sign. Peirce explains:

> We get it by reflecting upon signs—words or thoughts;—we observe that different predicates

[415] Cf. Fodor 2008, p. 21.

> may be attached to the same subject, and that each makes some conception applicable to the subject; then we imagine that a subject has something true of it merely because a predicate (no matter what) is attached to it,—and that we call Being. The conception of being is, therefore, a conception about a sign—a thought, or word;—and since it is not applicable to every sign, it is not primarily universal, although it is so in its mediate application to things.[416]

The nature of the word and of thought is the sign; conception is applicable to things through mediating forms. That is to say, concept is the core of cognition, and it allows us to see the meanings of words as well as thoughts. Therefore, cognition concerns relations between signs as well as relations between concepts. Those concepts are interpretive rather than logically restricted. For Fodor, the semantics of LOT is based on its syntax, but mental content has a disposition of its own. The content of the mind has a disposition towards an intentional state, which itself appears to connect with a possible interpretation of the mind. Therefore, for Fodor, intentionality and not consciousness is the mark of cognition; the intentional states of the mind, in addition to the functional processes of the mind, comprise an inner modality. However, Fodor rejects the function of interpretation to be the essential nature of cognition. Besides, Fodorian theory is not rooted in the analytic tradition. He does not agree with the axioms of formal logic, because the intentional content of mind should not be restricted in such a rigid manner. The semantics of RTM yields folk psychology and common sense explanations instead of logical behaviorism and action semantics. Based on the hypothesis of the computer metaphor, Fodor takes the intentionality of mind and the compositionality of mental representations to be the most salient difficulties facing RTM. Fodor asserts in *LOT2* the unresolved difficulty of *LOT1*:

> Over the last couple of years I've become increasingly convinced that capturing the compositionality of thought is what RTM most urgently requires; not just because compositionality is at the heart of the productivity and systematicity of thought, but also

[416] Cf. Peirce; Buchler (ed.) 1940, p. 240.

> because it determines the relation between thoughts and concepts. The key to the compositionality of thoughts is that they have concepts as their constituents.[417]

The theory of concepts is the core of RTM. The compositionality of concepts poses the most difficulty in illustrating the intentional contents of the mind. Moreover, compositionality is also prior to the external explanations of the productivity and systematicity of the language and mind. In short, these features of cognition all concern the interpretation of mental relations as well as the functioning process of thinking by concepts. It appears that the concept serves as the constituent of thought, but also makes the mind recognizable and identifiable. However, the concept lacks directness; it is abstract, and thus cannot be directly perceived. As the object of the mind, the concept can refer to an object in the external world possessing aboutness, which is not a physical transmission; the concept is not a signal. That is to say, there may exist an objective relationship between the inner and outer worlds, but its objectivity is irreducible. Therefore, the functioning relation between different minds by the performance of concepts poses a key difficulty to the study of mental knowledge.

Nevertheless, there remain two difficulties facing the knowledge of the mind. From my perspective, to know the essence of the mind is akin to seeking the hiddenness of the mind, which is referred to as an 'occult power from the depths of the soul.' The seeking perspective betrays a lack of clarity and wholeness, because it is partially blind. These two difficulties inform, first, the association of the idea (known as *similarity*) and second, the continuity of the idea (or *contiguity*). The former concerns inner connections, while the latter may be influenced by the former.[418]

Although in the work of Peirce the notion of intentionality is not represented, the intentional content of the mind is important for explaining the essential features of the mind in addition to the conscious state. The former seems to be a state of 'type,' while the latter is a state of 'token.' Types should be concentrated, while tokens should be differentiated. Therefore, from Peirce's perspective, the production of a mentality is

[417] Cf. Fodor 2008, pp. 19-20.
[418] Cf. Peirce; Buchler (ed.) 1940, p. 340.

also caused by its inner compositionality. Furthermore, both the links between different ideas and the links between different minds benefit the similarity and contiguity possessed by concepts in identifiable abstractness as well as the 'two generally recognized principles of association.' These ideas also yield the tenets of functionalism and structuralism. However, Fodor does not introduce the latter into RTM. Although LOT does not go so far as to advocate structuralism, it does explore the function of the structure of the mind. This model is also produced by the compositional relations between the elements of the structuralized mind. In other words, the mind is capable of conceptualizing its contents. For Peirce, the regular form of thinking is akin to the 'law' of the mind, which condenses a habitual disposition in a deeper sense rather than speculation. It is the function of logic as well as the law of the mind that guarantees the clarity of mental relations. Peirce writes:

> Logical analysis applied to mental phenomena shows that there is but one law of mind, namely that ideas tend to spread continuously and to affect certain others which stand to them in a peculiar relation of affectability. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas.[419]

Affectability is invoked by the functional associations of mentalities and their agencies. Affection and infection conveniently links the 'cold' of cognitive science to the 'cure.' This idea of affectability can be regarded as the function of intentionality. Therefore, Fodor's proposed features of the mind—e.g. compositionality, productivity and the systematicity of language and mind—may be further evaluated by their own efficiency in order to understand their affect, since the form of intensity as well as the embodied meaning needs to be recognized again from different representations and tokens. Besides, the centrality and generality should nevertheless be identified as the main features of a cognitive mind. For Peirce, a question of logic is different from a question of psychology. For this reason, the law of the mind is beyond psychological

[419] Cf. *Idem*, p. 340.

principles. He explains:

> The psychological question is what processes the mind goes through. But the logical question is whether the conclusion that will be reached, by applying this or that maxim, will or will not accord with the fact. It may be that the mind is so constituted that that which our intellectual instinct approves will be true to the extent to which that instinct approves of it. If so, that is an interesting fact about the human mind; but it has no relevancy for logic whatsoever.[420]

The human mind is capable of maintaining essential ideas in addition to rendering every exposed thing as directly meaningful as possible. Therefore, the mind needs an inner law rather than external restrictions. Different from psychology, logic indicates the inevitable direction of thinking, while psychology offers satisfactory explanatory principles. Logic is amenable, and we cannot think without it, whereas the disposition of the mind is not necessary, but likely a particular habit. Thus, a methodology can be understood as the formation process of a mental habit. In such a way, Peirce's theory of the *intellectual concept* is akin to Fodor's theory of *propositional attitudes*. Peirce says:

> Intellectual concepts, however — the only sign-burdens that are properly denominated 'concepts' — essentially carry some implication concerning the general behaviour either of some conscious being or of some inanimate object, and so convey more, not merely than any feeling, but more, too, than any existential fact, namely, the 'would-acts,' 'would-dos' of habitual behaviour; and no agglomeration of actual happenings can ever completely fill up the meaning of a 'would-be.' But [pragmatism asserts], that the total meaning of the predication of an intellectual concept is contained in an affirmation that, under all conceivable circumstances of a given kind (or under this or that more or less indefinite part of the cases of their fulfillment, should the predication be modal) the subject of the predication would behave in a certain general way — that is, it would be true under given

[420] Cf. *Idem*, p. 120.

> experiential circumstances (or under a more or less definitely stated proportion of them, taken as they would occur, that is in the same order of succession, in experience).[421]

Truth is the direction of a possible world filled with ideals. The distinction between the idea and the experience is that in the ideal world, the tokens are the things as they *would be*, whereas in the actual world, the token are the things as they *would occur*. In this way, the token 'square circle' would be thought, and the token of 'unicorn' would be made by appeals to the ability of the intellectual conceptualization. The theory of intellectual concepts positively includes meaningful content in its expository tendency to realize a possibility in order to recognize the meaning of the concept—in addition to existential factors such as feeling and emotion. For Peirce, the intellectual concept is not the ideal model of the mind, but it can perhaps help to make the mind a reasonable agency. This cognitive process is positive and active, and it is indeed involved in embodiment as a mental habit. In such a way, the embodiment concerns the possibility of realizing an idea; the nature of embodiment as well as 'fulfillment' is a possibility, but with the highest possible degree under the *given experiential circumstances*. From Peirce's perspective, both the cognitive mind and the embodied mind are involved in the growing tendency of confirmation in both the idea and experience. This is part and parcel of an evolutional theory of mind. Moreover, Peirce takes the philosophy of mind and psychology differently. He dislikes the definition of psychology that connotes a 'science of mind.' Instead, he advocates the psychical sciences/psychognosy conception of psychology and explains its relation to the physical sciences/physiognosy. Both physical and the psychical sciences are included in idioscopy/the special sciences. Physiognosy includes: physics, chemistry, biology, astronomy, geognosy, etc.; psychognosy yields psychology, linguistics, ethnology, sociology, history, etc.[422] For Peirce, the physical sciences depend on efficient causation while the psychical sciences depend on final causation, and these two types of science should be seen from 'different eyes.' He says: 'A man will be no whit the worse physiognosist for being utterly blind

[421] Cf. *Idem*, pp. 272-273.
[422] Cf. *Idem*, p. 67.

to facts of mind; and if we sometimes find observation in a psychognosist, it will, unless by exception, be found not to be of a purely physical fact.'[423]

A mental event is not a purely physical fact, because an event creates narratives in addition to transforming things through information and references. Therefore, a mental state is not a fixed state. Furthermore, we can see that the definition of psychognosy is similar to that of cognitive science, but it includes the frameworks of both the first and second generations. It appears that psychognosy is comprehensive knowledge of the mind. Peirce does not reject this common-sense interpretation.[424] He considers both its limits and richness from a 'critical common-sensist' point of view. From this perspective, modern science and new technologies have been taken into consideration in addition to older beliefs such as aesthetics, ethics, and logic. It is indeed pragmatists that align these modern and normative sciences in their pragmatist view in order to critique the new world created by science. Peirce asserts:

> Modern science, with its microscopes and telescopes, with its chemistry and electricity, and with its entirely new appliances of life, has put us into quite another world; almost as much so as if it had transported our race to another planet.[425]
>
> The evils are in some superficial way recognized; but it never occurs to anybody that the study of esthetics, ethics, and logic can be seriously important, because these sciences are conceived by all, but their deepest students, in the old way.[426]

In Peirce's sense, a belief is indisputable, no matter how old or new. Scientists should consider the philosophy of science in order to critique their own work, set limits, and serve as encouragement. This view is an advanced form of critical common sense rather than common sense itself. This perspective has proven helpful for Fodor in developing his folk psychology. Common sense should not overlook the natural perspective of science, but could explore the richness of the mental in addition to any

[423] Cf. *Idem*, p. 67.
[424] Cf. *Idem*, p. 67.
[425] Cf. *Idem*, p. 67.
[426] Cf. *Idem*, p. 297.

other rigid or viable sense. In fact, most traditional philosophers lack this open viewpoint. Therefore, pragmatism challenges this older view with the scientific method. In such a way, Peirce is perhaps not the target of Fodor's criticism, but may be his advisor.

Peirce does not subscribe to behaviorism. He emphasizes habit rather than action. The former is further explained as the habit of mind. As a representative realist, Fodor strongly rejects behaviorism and action semantics. Indeed, the basic premise of RTM depends on the existence of mental representations as well as mental symbols. However, Fodor did not introduce the theory of sign in order to strengthen his mental structure: neither the semiology of de Saussure[427] nor the semiotics of Peirce. The former influenced the development of structuralism in various domains, such as the structural anthropology of Claude Lévi-Strauss. Although Peirce's semiotics is different from that of de Saussure and the continental tradition, his pragmatism does take into consideration the ideas of phenomenology, existentialism, and hermeneutics, and his semiotics is concerned with all of these issues. Needless to say, Peirce influenced the development of logical positivism associated with Quine. It seems that the Fodorian approach is deeply rooted in neither the analytical nor the phenomenological traditions. Therefore, the perspective of Peirce may be introduced into RTM in order to account for some of their similar ideas and positions.

Contrary to the dyadic relation of the signifier and signified promoted by de Saussure, Peirce advocates a triadic relation that yields both intentional content and perceptual experience. In this sense, the Peirceian approach concerns both the structure and the interpretation of the mind. His theory of the sign is comparable to his theory of meaning. For Peirce, the idea of meaning depends on two main premises: 'The first is that every genuine triadic relation involves meaning, as meaning is obviously a triadic relation. The second is that a triadic relation is inexpressible by means of dyadic relations alone.'[428]

Considering the first premise, the cognitive agent requires meaning in order to

[427] Cf. Saussure; Bally and Sechehaye (eds.), Baskin (trans.) 1959.
[428] Cf. Peirce; Buchler (ed.) 1940, p. 92.

convince herself; therefore, the second premise restricts relations in order to avoid the subjective requirement. Moreover, genuine triadic relations can never be built on top of dyadic relations, because their complexity cannot be subdivided. Like Fodor, Peirce critiques associationism. He develops the idea of mental association in accordance with an embodied view. For Peirce, ideas are proximately associated in order to explain the infinite diversity of the universe, while 'chance' plays a role as well. In this way, repeating actions will develop into habits. This process is not only a continuous process—either by intention or by chance—but also an evolutionary process. Peirce writes:

> The law of continuous spreading will produce a mental association; and this I suppose is an abridged statement of the way the universe has been evolved ... There being a continuous connection between the ideas, they would infallibly become associated in a living, feeling, and perceiving general idea.[429]

The core of associating ideas can be verified by the meaning. At the core of semiotics is a theory of the mind. According to Peirce, sign, representamen, and representation are similar concepts. The meaning of the sign does not stand alone, but relates to the object of the mind being indicated. In this sense, a sign is a vehicle, and it transmits the idea in order to connect the internal and external worlds. Peirce asserts:

> A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen.[430]

[429] Cf. *Idem*, p. 347.
[430] Cf. *Idem*, p. 99.

Representamen is not an independent substance because its meaning is interpretive. A sign stands for something, such as an object, a fact, or a thought. However, when a sign possesses content, it is capable of representing independently. The interpretant is thus the content of the sign as well as the direct cause of a new sign. Therefore, the interpretant can be regarded as the bridge between an object and its representative idea. Thus this triatic dimension guarantees signs related by ideas, and the interpretant of the former sign makes the next new sign possible. This is an approach that Fodor can benefit from. Moreover, Fodor also challenges the dialectic relationship between concepts and thoughts. Differently, Peirce emphasizes the functional role of the interpretant in the triadic dimension:

> A Sign, or *Representamen*, is a First which stands in such a genuine triadic relation to a Second, called its *Object*, as to be capable of determining a Third, called its *Interpretant*, to assume the same triadic relation to its Object in which it stands itself to the same Object. The triadic relation is *genuine*, that is its three members are bound together by it in a way that does not consist in any complexus of dyadic relations. That is the reason the Interpretant, or Third, cannot stand in a mere dyadic relation to the Object, but must stand in such a relation to it as the Representamen itself does.[431]

Fodor does not consider this triadic dimension in his RTM. Although Peirce does not directly expose the mental perspective of the sign, a sign does indeed condense mental properties as its essence. Peirce asserts: ‘a *Sign* is a Representamen with a mental Interpretant’; ‘thought is the chief, if not the only, mode of representation.’ As a result, a representamen is a sign if and only if it can identically and independently represent its object. To use an analogy, a sunflower is, in the first step, a representamen, because this flower is fully and precisely capable of turning towards the sun; and in the second step, as an advanced representation, the sunflower stands independently and represents the direction of the sun as well as the sign of the sun. In this process, the

[431] Cf. *Idem*, p. 99.

productive power of the sunflower extends to the reproductive power of its copies and its sign, which includes intentional properties.

Peirce does not merely explain the production of the sign, but also its derivation. Neither the nature nor the meaning of the sign can be seen from its own perspective, while it can only be understood by thoughts. Therefore, a sign, like a sunflower, contains two perspectives; one invokes its nature, and the other yields the idea. As a result, a growth-inducing linked to the directness of the sun is embodied in the meaning of the sign. In such a way, embodied and cognitive perspectives are not conflicting. Besides, Peirce also considers the trichotomy of sign. He says:

> Signs are divisible by three trichotomies; first, according as the sign in itself is a mere quality, is an actual existent, or is a general law; secondly, according as the relation of the sign to its object consists in the sign's having some character in itself, or in some existential relation to that object, or in its relation to an interpretant; thirdly, according as its Interpretant represents it as a sign of possibility or as a sign of fact or a sign of reason.[432]

In addition, Peirce considers the trichotomy of sign.[433] Depending on this trichotomy, signs are divided into three types: Qualisign, Sinsign, Legisign;[434] Icon, Index, Symbol;[435] Rheme, Dicent Sign, Argument.[436] Qualisign/Icon/Rheme concerns the qualitive similarity (quality); Sinsign/Index/Dicent Sign concerns physical association (fact); Legisign/Symbol/Argumen concerns mental connection (thought). In order to differentiate between and identify these various signs and the association of ideas, there are three principals involved: resemblance, contiguity, and causality.[437] Similarly, in his RTM, Fodor distinguishes representations as well, such as 'iconic representation' and 'discursive representation.'[438] However, according to Fodor, both of these types of representations are of an improper form.

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[432] Cf. *Idem*, p. 101.
[433] Cf. *Idem*, p. 101.
[434] Cf. *Idem*, p. 102-103.
[435] Cf. *Idem*, p. 114.
[436] Cf. *Idem*, p. 103.
[437] Cf. *Idem*, pp. 245-246.
[438] Cf. Fodor, 2008, pp. 169-195.

Iconic representations have no canonical decomposition and no constituent structure. Such representations are simply parts rather than canonical parts. Their meaning is not systematically compositional. Moreover, discursive representations lack centrality. That is to say, without compositionality, the contents of the mind are chaotic; neither boundaries nor centrality are composed of instinct. Fodor explains:

> Here's another way to put this: An icon is a homogeneous kind of symbol from both the syntactic and the semantic point of view. Each of its parts is a constituent, and each constituent gets a semantic interpretation in accordance with the Picture Principle. But neither is true of discursive representations. Only a specifiable subset of the parts of a discursive symbol (namely, its canonical parts) are syntactic or semantic constituents; and it is thus far open that the various constituents of a discursive representation may contribute in different ways to determining the semantics of their hosts.[439]

Fodor regards the nature of an icon as serving a functional role in explaining the importance of the holism of mental constituents. Although Fodor explains the nature of representation through a consideration of the differences between sign, icon and symbol, he does not mention them in relation to the Peirce's or any other rigid linguistic system. Cognitive scientists in general disregard any methodology involving thinking with concepts. It appears that Fodor does not agree with physicalism or externalism; what he investigates is the composition of the mental architecture. This aspect is also concerning the law of the mind. The inner disposition of mind is not a subjective one, but it is unobservable. Based on the semiotics of Peirce, the notion of Fodor's mental representation is more like to a 'symbol' than an icon or index. A symbol is a 'conventional sign' that can be used to explain both the complexity and intentionality of the mind. Peirce explains:

> The Icon has no dynamical connection with the object it represents; it simply happens that

[439] Cf. *Idem*, p. 174.

> its qualities resemble those of that object, and excite analogous sensations in the mind for which it is a likeness. But it really stands unconnected with them. The index is physically connected with its object; they make an organic pair, but the interpreting mind has nothing to do with this connection, except remarking it, after it is established. The symbol is connected with its object by virtue of the idea of the symbol-using mind, without which no such connection would exist.[440]

For example, the icon includes signs such as the marks of washing rooms. The room can be identified from the likeness of the sign and its object; the index includes signs such as the objects on your computer desktop that link to system programs through the clicking of a mouse. Contrary to the nature of icon and index, the symbol is a growing and mixed sign. That is to say, its meaning is modifiable with respect to the optimal way of externalizing the essential ideas of the mind. For Fodor, the state of thinking is equivalent to the cognitive state, and for Peirce, 'we think only in signs.' Peirce writes:

> These mental signs are of mixed nature; the symbol-parts of them are called concepts. If a man makes a new symbol, it is by thoughts involving concepts. So it is only out of symbols that a new symbol can grow... A symbol, once in being, spreads among the peoples. In use and in experience, its meaning grows.[441]

As opposed to the similarity between icons or the association of indexes, the meaning of a symbol depends more on its function and realizable effect. This effect is causally meaningful, and yields rational explanations that tend to be increasingly improved. Furthermore, it can be found that 'mental representation' is also a concept in Peirceian terminology, though not an essential one. He says:

> Mental representation is called the *immediate object* of the sign; and this object does

[440] Cf. Peirce; Buchler (ed.) 1940, p. 144.
[441] Cf. *Idem*, p. 115.

> triadically produce the intended, or proper, effect of the sign strictly by means of another mental sign; and that this triadic character of the action is regarded as essential is shown by the fact that if the thermometer is dynamically connected with the heating and cooling apparatus, so as to check either effect, we do not, in ordinary parlance, speak of there being any *semeiosy*, or action of a sign, but, on the contrary, say that there is an 'automatic regulation,' an idea opposed, in our minds, to that of semeiosy. For the proper significate outcome of a sign, I propose the name, the *interpretant* of the sign.[442]

There is a rather important element in Peirce's explanation of mental representation: namely, the interpretant. This is the action as well as the proper significant outcome of a sign. The interpretant concerns both the productivity and systematicity of the mind, because it asserts the dynamic meaning of the symbol. Besides, Fodor's explanation of mental representation is based on the computer metaphor hypothesis. The nature of the sign of the computer is akin to the index, which invokes a physical linkage. Therefore, it is more proper to say that, in RTM, the nature of mental representation is a mixture of index and icon, and this special sign could only be a symbol because it is capable of addressing the proper nature of other signs. Thus, mental representation is a conventional sign, the meaning of which is not only compositional, but evolutionary as well. As a result, speculative psychology would not exclude a proper interpretive psychology.

Though Peirce does not use the term 'intentionality,' his understanding of 'consciousness' yields the nature of intentional content. Conscious states are caused by attention; it is the force and emphasis of attention that activates the objective elements of consciousness. Peirce regards the nature of conscious states as being a qualitative state of mind. Mental representation is not a feeling, it invokes only the effect upon consciousness. Besides, 'attention is a matter of continuous quantity' and it diminishes over time. However, knowledge can be stored in the form of memory as well as the 'influencing [of] subsequent thought.' As a result, cognition is capable of 'producing

[442] Cf. *Idem*, p. 275.

an effect upon memory.' Peirce explains the meaning of attention:

> In the first place, it strongly affects memory, a thought being remembered for a longer time the greater the attention originally paid to it. In the second place, the greater the attention, the closer the connection and the more accurate the logical sequence of thought. In the third place, by attention a thought may be recovered which has been forgotten. From these facts, we gather that attention is the power by which thought at one time is connected with and made to relate to thought at another time; or, to apply the conception of thought as a sign, that it is the pure demonstrative application of a thought-sign.[443]

The function of the mind and the significance of cognition lie at the core of Peirceian philosophy. He thus explains the content of cognition and the law of the mind. As we are thinking with concepts, the sign plays a role akin to the 'pure demonstrative application of a thought-sign.' This idea of Peirce's is helpful in resolving the fifth problem facing Fodor's RTM: Are there bare demonstrative representations in the language of thought?[444] That answer is 'yes.' As a result, whether we are talking about RTM or ETM, habit may yet have an important role to play in cognitive science.

According to Peirce, a habit corresponds to a logical consequence. Habit yields logical rules. That is to say, the mind cannot rid itself of logical restrictions. Peirce explains:

> The real and living logical conclusion is that habit; the verbal formulation merely expresses it. I do not deny that a concept, proposition, or argument may be a logical interpretant. I only insist that it cannot be the final logical interpretant, for the reason that it is itself a sign of that very kind that has itself a logical interpretant. The habit alone, which though it may be a sign

[443] Cf. *Idem*, p. 241.
[444] Cf. Fodor; Dedrick and Trick (ed.) 2009, XV, IV.
There are six questions:
i. What is the nature of mental processes?
ii. What kinds of things are mental representations?
iii. How do mental representations have content?
iv. How do mental representations attach to the world?
v. Are there bare demonstrative representations in the language of thought?
vi. If there are, what sticks them to their referents?

> in some other way, is not a sign in that way in which that sign of which it is the logical interpretant is the sign. The habit conjoined with the motive and the conditions has the action for its energetic interpretant; but action cannot be a logical interpretant, because it lacks generality. The concept which is a logical interpretant is only imperfectly so. It somewhat partakes of the nature of a verbal definition, and is as inferior to the habit, and much in the same way, as a verbal definition is inferior to the real definition. The deliberately formed, self-analyzing habit—self-analyzing because formed by the aid of analysis of the exercises that nourished it—is the living definition, the veritable and final logical interpretant. Consequently, the most perfect account of a concept that words can convey will consist in a description of the habit which that concept is calculated to produce.[445]

For Peirce, a person can represent one thing with another, but cannot explain the meaning of one sign through the use of another sign. Logical interpretation is necessary, but not sufficient, because it lacks content as well as the life experience that invokes the complexity and richness of personality. Fodor mainly refers to the propositions of *belief* and *desire* in order to prove the intentionality of the mind. For Peirce, it is the tension between *belief* and *doubt* that produces the meaning of cognition. Peirce regards belief as 'the demi-cadence which closes a musical phrase in the symphony of our intellectual life.' He explains:

> We have seen that it has just three properties: First, it is something that we are aware of; second, it appeases the irritation of doubt; and, third, it involves the establishment in our nature of a rule of action, or, say for short, a *habit*. As it appeases the irritation of doubt, which is the motive for thinking, thought relaxes, and comes to rest for a moment when belief is reached. But, since belief is a rule for action, the application of which involves further doubt and further thought, at the same time that it is a stopping-place, it is also a new starting-place for thought.[446]

[445] Cf. Peirce; Buchler (ed.) 1940, p. 286.
[446] Cf. *Idem*, pp. 28-29.

The content of belief is the corresponding rule of the mind. The believable state is not the final state, but a meaningfully fixed state of a functioning mind. As illustrated in the introduction of Peirce's pragmaticism, 'belief is not a momentary mode of consciousness; it is a habit of mind essentially enduring for some time, and mostly (at least) unconscious.'[447] Belief is the most important habit of mind; it might not be in dissolution if kept perfectly self-satisfied. On the contrary, doubt is the 'privation' of a habit that should be superseded by the habit. The ultimate state of habit is a state of fixed belief and perfect knowledge; it is under control, but does not need to be forcibly controlled. As such, according to Peirce, the propositional attitude of the mind also yields the habit.

> A habit of inference may be formulated in a proposition which shall state that every proposition *c*, related in a given general way to any true proposition *p*, is true. Such a proposition is called the *leading principle* of the class of inferences whose validity it implies.[448]

The leading principle is not present to the mind, but is formulated in habit, being especially involved in its active growing tendency. The habit of mind includes a growing force rather than the disposition of the mind. Moreover, habit transforms a previous experience into a possible future experience. It is an *adaptation* rather than a *connection*. Generally, a habit is formed in a familiar environment and then adopts certain unfamiliar changes in order to successfully execute a development in the future. Every creature actually behaves habitually in similar ways under similar circumstances in the future.

In addition to this general view of habit, Peirce also discusses the physiological explanation of belief. He says: 'A cerebral habit of the highest kind, which will determine what we do in fancy as well as what we do in action, is called a *belief*. The representation to ourselves that we have a specified habit of this kind is called a

[447] Cf. *Idem*, p. 257.
[448] Cf. *Idem*, p. 131.

judgment.'[449]

For Peirce, we actually make judgements with our belief. He explains the meaning of belief-habit further;

> A belief-habit in its development begins by being vague, special, and meagre; it becomes more precise, general, and full, without limit. The process of this development, so far as it takes place in the imagination, is called *thought*. A judgment is formed; and under the influence of a belief-habit this gives rise to a new judgment, indicating an addition to belief. Such a process is called an *inference*; the antecedent judgment is called the premiss; the consequent judgment, the *conclusion*; the habit of thought, which determined the passage from the one to the other (when formulated as a proposition), the *leading principle*.[450]

Belief-habit is an initial disposition of mind regarded by Peirce to lie at the core of his theory of mind. For him, the development of belief is spontaneous and continually developing within us. Our belief as well as mental action might become increasingly fixed and reliable. Belief is furthermore a cognitive process rather than a mental state. For instance, Peirce asserts: 'Belief is partly determined by old beliefs and partly by new experience,' and 'fresh peripheral excitations are also continually creating new belief-habits,' that is, belief-habit is 'independent of what has been believed hitherto, and therefore has the character of reality.' Therefore, possessing a belief is 'in the long run, toward certain predestinate conclusions which are the same for all men. This is the faith of the logician.'[451] Peirce asserts: 'If a given habit, considered as determining an inference, is of such a sort as to tend toward the final result, it is correct; otherwise not. Thus, inferences become divisible into the valid and the invalid; and thus logic takes its reason of existence.'[452]

According to Peirce, the habit is the projectable direction of both action and thought. Habit is the most reliable state of mind for realizing its potentiality; it is the

[449] Cf. *Idem*, p. 130.
[450] Cf. *Idem*, p. 130.
[451] Cf. *Idem*, p. 130.
[452] Cf. *Idem*, p. 130.

evolution of mind involving both vitality and rationality. The ideal and actual perspectives of mind are inseparable, even though they can perform independently. The meaning of truth is a result of this feature. Similar to the position of Johnson, Peirce also takes human understanding to be the essential feature of cognition. This position can also be found in Fodor, who explores the relation between cognitive agents and mental representations. How should we understand this relation? Peirce explains:

> Man makes the word, and the word means nothing which the man has not made it mean, and that only to some man. But since man can think only by means of words or other external symbols, these might turn round and say: "You mean nothing which we have not taught you, and then only so far as you address some word as the interpretant of your thought." In fact, therefore, men and words reciprocally educate each other; each increase of a man's information involves and is involved by, a corresponding increase of a word's information.[453]

Consequently, in Peirceian pragmatism, both cognitive and embodied mind are invoked in the habit of the mind. The relation between men and words are interactive.

[453] Cf. Peirce; Buchler (ed.) 1940, pp. 248-249.

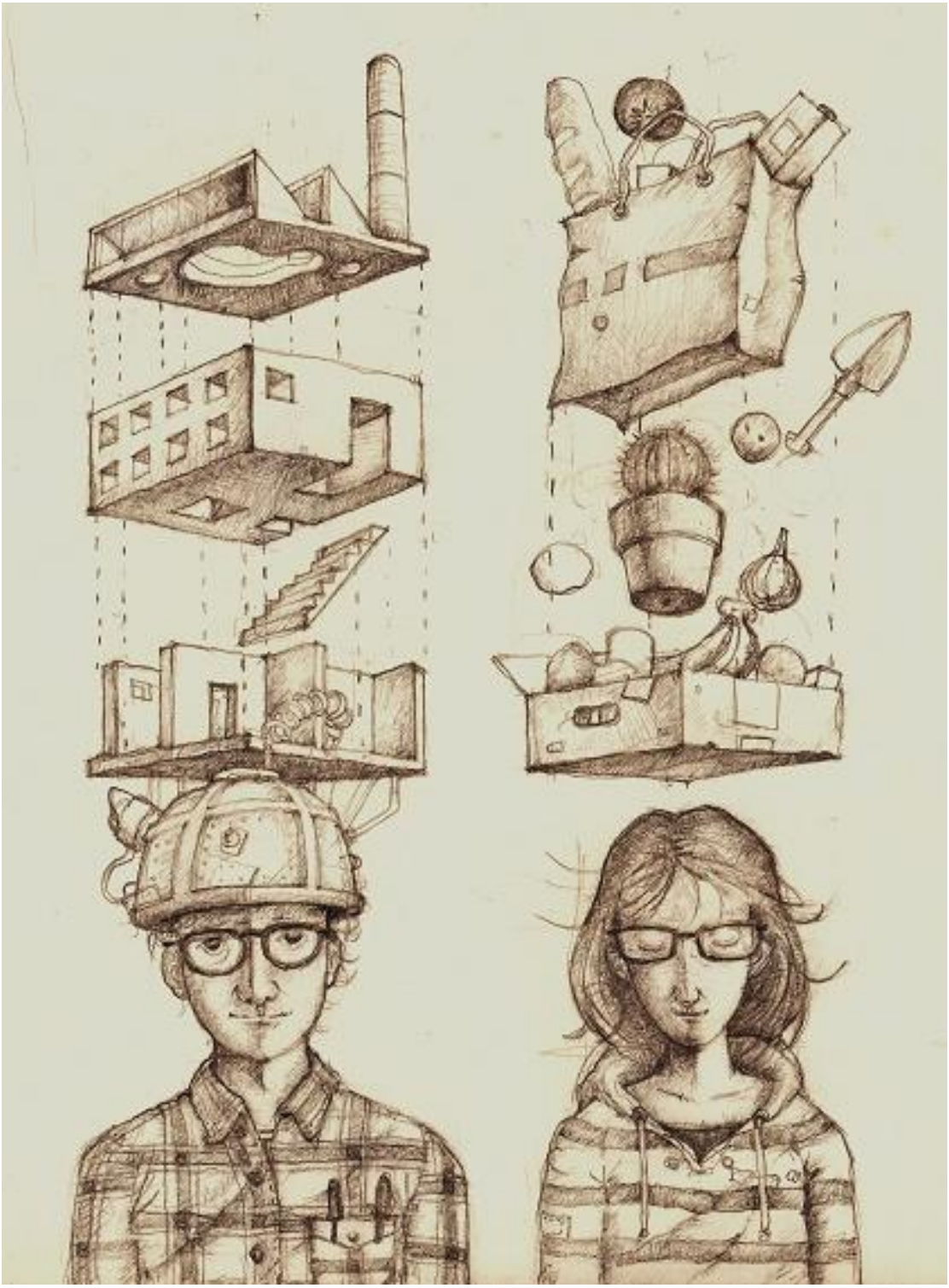

Illustration courtesy of James Wang

Conclusion

In the domain of cognitive science, the rising trend of pragmatism entails various difficulties and obstacles. Indeed, these are challenges everyone should face, but it is nevertheless difficult to justify or remove obstacles. As a result, from my point of view, classical pragmatism should be taken as significant for cognitive science, although it may be difficult to identify which approach should be taken. Furthermore, the approach presently used by cognitive pragmatists is not reliable enough. What this dissertation presents is the necessary preparation, historical background, and context for anticipating a possible pragmaticist turn in cognitive science. In my conclusion I propose that it is possible that pragmaticism can provide the necessary philosophical framework for cognition research.

Cognitive science and pragmatism are multidisciplinary, with frequent overlaps in the fields of epistemology and psychology. Therefore, one possible way of carrying out a viable comparison between the two necessitates, and a careful examination is crucial beforehand. The findings may show that their theoretical relations are neither entirely positive nor entirely negative. This research incorporates many older topics of the philosophy of mind.

In addition to the fully positive perspective of ‘second-generation cognitive science’ and the ‘pragmatic turn,’ I introduced a third approach known as the ‘pragmaticist turn,’ and addressed the distinction from the general impression of the ‘pragmatist turn.’ Indeed, such different notions were not crucial, because the very same ideas of the pragmatists have been expressed in different ways in order to balance the various degrees of being strong or less strong. Furthermore, in order to resolve the various confusions that have appeared between RTM and ETM in the controversial and rising trend of pragmatism, I explored the Johnson-Fodor debate. I introduced their opposing views on pragmatism: namely, cognitive pragmatism and anti-pragmatist cognitivism, respectively. It could nevertheless be difficult as well as dangerous to perpetuate a pragmaticist perspective of cognition. This research was carried out in order to find a possible answer and set out expectations. Hence, my proposal is

absolutely not a preconception; rather, it is a big unknown. In such a way, a Peirceian approach is both a challenge and an opportunity to revise the unreliability latent in the turn and perhaps utilize Peirceian ideas to create a significant turn for cognitive science. Therefore, the aim of the pragmaticist turn is not to change the direction of cognitive science. Rather, the goal is to achieve a better understanding of cognition—which means getting a better grasp on the relation between pragmatism and cognitive science as well as a non-biased view of the contradictions between them. It seems that by making certain modifications, the pragmatist legacy of Peirce will prove useful for both the cognitive and embodied mind.

Cognitive pragmatists reject both the representational and computational theories of mind. Rather than researching machines, cognitive pragmatists promote the cognition research of certain living creatures or dynamic systems. In such a way, the body-brain is not merely a container of the mind; it renders the contents of the mind possible and meaningful. Moreover, action is regarded as the way to realize essential ideas of the mind in order to face and resolve real-world problems. Thus, cognition is not merely the representation and computation of inputs and outputs in a 'closed box'; action is cognition. The latter is proclaimed as the slogan of the movement of embodied cognitive science: action is the core of cognition. Embodied meaning is much more basic than speculative meaning. These ideas are challenging the classical tenets of cognitive science. Furthermore, new ideas such as these are currently being integrated into cognitive science by the scientists themselves. It seems that a new community will be founded between the camps of the philosophers and scientists. However, upon revisiting the classical ideas of pragmatism, one may note that action is not so crucial to the theory of pragmatism, although the pragmatic way of thinking was regarded by pragmatists as part of the scientific method.

Action was regarded as an important concept in classical pragmatism. However, it is not the central topic. Pragmatism is nevertheless a theory that explores the relation between truth and meaning from a realistic perspective, utilizing various methodologies taken from the natural and human sciences. Thus, although both action and practice are important notions, the most important thing is to define the realizable way of their

contents as well as the meaningful cognition. Our cognitive abilities function in such a way that we are able to recognize meaning either indirectly through concepts or directly through actions. In Peirce's pragmatism, the idea of action is replaced by the notion of habit. Neither Johnson nor Fodor consider Peirce to be an influential pragmatist. For this reason I introduce the Peirceian approach in order to explore the rising trend of pragmatism and to examine the debate between the '*pragmatic* turn' and '*pragmatist* cold.'

The *pragmaticist* turn yields multiple implications for cognitive science. This approach is more than simply a critique of first-generation cognitive science and corresponding advocacy of the 'second generation.' Instead, the forms of representation- and action-oriented cognition do not necessarily contradict each other. Together, they are able to provide us with many non-exclusive choices. Moreover, the second-generation cognitive science advocated by Johnson has too wide a scope. To some extent, this enlarged range impairs both the depth and sharpness of philosophical thinking, while at the other extreme, Fodor's RTM threatens to throw out the baby with the bathwater.

As a consequence, if action is taken to be the central idea of pragmatism, then the core notion of pragmaticism would be habit. Furthermore, if representation and action are opposing concepts, then the notion of habit has the potential to dissolve the tension between the two views. For Peirce, habit plays a double role: in both action (the habit of action) and belief (belief-habit). Compared to action, habit is more useful for realizing the rationality and stability of thought. It also implies a strong sense of spontaneity and continuity. Peirce not only emphasizes the effect of habit on actions, but he also suggests habit affects the mind. In effect, mental habit concerns both one's internal disposition and external correspondence. The meaning of habit can be witnessed in the adaptive capabilities of every creature not in possession of higher-order intelligence. Therefore, habit is superior to action when it comes to defining the nature of the mind.

In considering the rising tide of cognitive pragmatism, an advanced version of this phenomenon may be defined as 'neoclassical' cognitive pragmatism. Giving this

variant a new term allows us to concentrate on the classical ideas of pragmatism on one hand, and on the other refrain from engaging in any muddled debates in cognitive science. A significant pragmaticist turn in cognitive science should begin its research from the initial starting point of pragmatism while carefully exploring promising significant and related ideas. Taking this radical perspective, this *pragmaticist* turn would be able to avoid the confusions propagated by pragmatism as well as the various controversies plaguing the field of cognitive science. Indeed, I refrain from critiquing any other theory; I have merely chosen different techniques than those that they provide.

Pragmatism is not the principle the majority of people consciously and directly employ in guiding their practices. Pragmatists advocate a way of thinking that aims to be above all else as reliable as possible. Thus, its principles will be realized in different ways by different people, while the methodology itself will remain consistent.

Given that what I am trying to do is present a clear conception of pragmatism and introduce pragmatism to cognitive scientists, this narrow perspective implies that this work is a piece of philosophical research rather than cognitive research. This is the limitation of my dissertation.

Finally, I have identified an incoherent concept in Peirce's work: his views on practice. In his definition of pragmatism, practice is explained in the sense of Kant's *praktisch*, which concerns the highest rationality and morality. However, in his clarification of science, practice is explained as being the opposite of theory in its general sense of the theoretical and practical knowledge. As a matter of fact, these concepts—action, practice, and habit—are all involved in the clarification of the ideas of pragmatism. And yet their boundaries are not so distinct. This way of thinking is nonetheless able to yield a way of doing. In pragmatism, both the conceivability and practicality of cognition is crucial, and those ideas can be helpful in bringing about a more balanced and neutral stance to cognitive science. Pragmatism may either be the cold or the cure for cognitive science; for me, it is a method that allows us to realize certain therapeutic effects.

Afterword

I do not know exactly how to share with others my experience in writing this dissertation. It was a long and at times solitary journey. Along the way, I risked becoming lost myself and nearly jeopardized its completion. I discovered the dangers a 'free will' can pose if the will does not subject itself enough to reason. But a strong will is insufficient to complete an intellectual exercise—the essence of the mind is not to form and possess a strong will, but to render every precious will becoming strong and true. It is this very idea that I gleaned from my study of pragmatists. I engaged in this domain not merely because I had the opportunity, but for the challenge and intellectual rigors involved in exploratory theorization.

During the process of completing my dissertation—specifically, around the time I began to formulate the concept of 'hide-ability'—I surmounted incredible obstacles. For one, it was a challenge to express these ideas clearly to others so that they may be understood. However, during the writing process of precisely this part, I considered certain stories that could not be understood by others. The final section is both rational and emotive, and this is significant in light of its original nature, but it was removed.

Moving forward, I submit that the cognitive and embodied minds are both contained in our minds.

Between rationality and emotion, I have to confess that when my mind is provoked emotionally, sometimes I struggle to form clear ideas; yet I am still capable of making rash decisions in this state. Does this suggest that emotion is negative? Perhaps not. Without emotion and rashness, I would not continue down the path of thinking about something that I do not understand. I would not wait for a person or idea without hesitation or self-persuasion. If it is a rational choice, the result is inflexible and cannot be different. However, what I am waiting for is possibility: a thing necessitating believing and waiting.

It is thus that, at this moment, I have given up looking for a solution to the problem of other minds, choosing instead to take it on faith that they do exist. Moreover, I choose

to believe in and respect them. I would like to be neither rational nor reasonable. I do not indeed undergo a fully rational process, but with my intuition of my way to the truth. Instead, I face things alone with a sense of controllability. This controllability is not derived from the satisfaction of finding truth nor the meaning of truth. Truth is not begotten intentionally, but rather something encountered by chance. Therefore, on the way, one encounters various obstacles.

One life is one way; the end of life is the end of this way. When the path is rough, life itself lacks all smoothness. Given that time is both limited and irreversible, we cannot come to a full stop at any step of life. Therefore, when we do not know where the end is, what we can do is make the way smoother. When the path is blocked, the person risks losing her credibility. When creditability is questioned, in this sense, once is enough to jeopardize everything. If a person lacks credibility, others cannot come to understand her mind. That does not mean that we do not want to believe her; we just do not know how to believe. A belief can be lost step by step, but believability can never be regained—not even by that same incremental process.

I can only guess as to what was on Peirce's mind when he was discussing the tension between belief and doubt. Perhaps we share the same feeling, and the problem is not that we do not want to believe—only that *dubiousness* is strong and can never be removed completely. This sensory qualia in involved double difficulties. On the one hand, this dubiousness refers to the quality of a thing that makes it doubtful, and on the other, it is referred to our capacity to doubt. However, we want to believe in other minds. The problem is that other minds sometimes appear reliable, and at other times not reliable enough. Within an entire belief, it is terrible to glimpse from time to time a sense of growing doubt with various *otherness* and trivialness involved. That is to say, we are not sure about what are we doubting for, because the doubting objects are difficult to identify.

No one wants to be a nihilist. It is not a voluntary choice to see the world through a grey lens. In fact, I am capable of believing things but have been unfortunately implicated within careless choices made by others. It is indeed quite difficult to develop and hone a good critical point of view. In general, it is more difficult to maintain control

over the emotive perspective than it is the rational perspective. In order to remain honest, we need to critique ourselves, to attempt to understand other minds, and to control our emotive side. However, through the lens of the honest person, no one can succeed in hiding her mind because the honest lens is capable of finding its way towards the hiddenness. We should not doubt other minds. Instead, we should clearly confirm that we really are capable of believing them. Hence, in my understanding, the nature of cognition involves introspection. Thus, cognition seems to be essential for every mind: while the importance lies in one's own and real journey of truth.

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